

1.TRANSMITTED DATA

1-1 CHANNEL MESSAGES

[H] :Hex, [D] :Decimal

Status	Second	Third	Description (Transmitted by)	ENA
[Hex]	[H] [D]	[H] [D]		
8n	kk (kk)	40 (64)	Note Off (Key Off)	*1 A
9n	kk (kk)	vv (vv)	Note On (vv)=1-127 (Key On)	*1 A
An	kk (kk)	vv (vv)	Poly Key Pressure (Sequence data)	T,Q
Bn	00 (00)	mm (mm)	Bank Select(MSB) (BANK keys, Prog/Combi change)	*2 PB
Bn	01 (01)	vv (vv)	Modulation1 (Joy Stick +Y)	C
Bn	02 (02)	vv (vv)	Modulation2 (Joy Stick -Y)	C
Bn	04 (04)	vv (vv)	Foot Pedal (A.Pdl = Foot Pedal)	C
Bn	05 (05)	vv (vv)	Portamento Time (A.Pdl/Knob-B = Porta.Time,S Chg)	C
Bn	06 (06)	vv (vv)	Data Entry (MSB) (ARP ON/OFF, GATE, VELOCITY)	*3 C
Bn	07 (07)	vv (vv)	Volume (A.Pdl/Knob-B = Volume,S/C Chg)	C
Bn	08 (08)	vv (vv)	Post IFX Panpot (A.Pdl/Knob-B = IFX Pan,S Chg)	C
Bn	0A (10)	vv (vv)	Panpot (A.Pdl/Knob-B = Pan,S Chg)	C
Bn	0B (11)	vv (vv)	Expression (A.Pdl/Knob-B = Expression)	C
Bn	0C (12)	vv (vv)	Effect Control 1 (A.Pdl/Knob-B = FX Control1)	C
Bn	0D (13)	vv (vv)	Effect Control 2 (A.Pdl/Knob-B = FX Control2)	C
Bn	10 (16)	vv (vv)	Multi Purpose Ctrl1 (Knob-B = MIDI CC#16)	C
Bn	11 (17)	vv (vv)	Multi Purpose Ctrl2 (Knob-B = Knob Mod1)	C
Bn	12 (18)	vv (vv)	Multi Purpose Ctrl3 (Knob-B = MIDI CC#18)	C
Bn	13 (19)	vv (vv)	Multi Purpose Ctrl4 (Knob-B = Knob Mod2)	C
Bn	14 (20)	vv (vv)	(Knob-B = Knob Mod3)	C
Bn	15 (21)	vv (vv)	(Knob-B = Knob Mod4)	C
Bn	20 (32)	bb (bb)	Bank Select(LSB) (BANK keys, Prog/Combi change)	*2 PB
Bn	40 (64)	vv (vv)	Hold1 (Damper)	C
Bn	41 (65)	00/7F (00/127)	Portamento Off/On (SW1/SW2/A.SW = Porta.SW, S Chg)	C
Bn	42 (66)	00/7F (00/127)	Sostenuto Off/On (A.SW = Sostenuto)	C
Bn	43 (67)	vv (vv)	Soft Pedal (A.SW = Soft)	C
Bn	46 (70)	vv (vv)	Sound Controller 1 (Knob-B = F/A Sustain)	C
Bn	47 (71)	vv (vv)	Sound Controller 2 (Knob-2A/Knob-B = Resonance/HPF)	C
Bn	48 (72)	vv (vv)	Sound Controller 3 (Knob-4A/Knob-B = F/A Release)	C
Bn	49 (73)	vv (vv)	Sound Controller 4 (Knob-B = F/A Attack)	C
Bn	4A (74)	vv (vv)	Sound Controller 5 (Knob-1A/Knob-B = LPF Cutoff)	C
Bn	4B (75)	vv (vv)	Sound Controller 6 (Knob-B = F/A Decay)	C
Bn	4C (76)	vv (vv)	Sound Controller 7 (Knob-B = Pitch LFO1 Spd)	C
Bn	4D (77)	vv (vv)	Sound Controller 8 (Knob-B = Pitch LFO1 Dep)	C
Bn	4E (78)	vv (vv)	Sound Controller 9 (Knob-B = Pitch LFO1 Dly)	C
Bn	4F (79)	vv (vv)	Sound Controller 10 (Knob-3A/Knob-B = Filter EG Int)	C
Bn	50 (80)	00/7F (00/127)	Multi Purpose Ctrl15 (SW1/Knob-B = SW1 Mod.)	C
Bn	51 (81)	00/7F (00/127)	Multi Purpose Ctrl16 (SW2/Knob-B = SW2 Mod.)	C
Bn	52 (82)	00/7F (00/127)	Multi Purpose Ctrl17 (A.SW/Knob-B = Foot SW)	C
Bn	53 (83)	vv (vv)	Multi Purpose Ctrl18 (Knob-B = MIDI CC#83)	C
Bn	5B (91)	vv (vv)	Effect 1 Depth (A.Pdl/Knob-B = MFX Send2, S Chg)	C
Bg	5C (92)	00/7F (00/127)	Effect 2 Depth (Insert FX Off/On)	C
Bn	5D (93)	vv (vv)	Effect 3 Depth (A.Pdl/Knob-B = MFX Send1, S Chg)	C
Bg	5E (94)	00/7F (00/127)	Effect 4 Depth (Master FX1 Off/On)	C
Bg	5F (95)	00/7F (00/127)	Effect 5 Depth (Master FX2 Off/On)	C
Bn	cc (cc)	vv (vv)	Control (cc)=0-95 (Knob-B = MIDI CC#00-95)	C
Bn	62 (98)	ss (ss)	NRPN Param No.(LSB) (ARP ON/OFF, GATE, VELOCITY)	*3 C
Bn	63 (99)	tt (tt)	NRPN Param No.(MSB) (ARP ON/OFF, GATE, VELOCITY)	*3 C
Bn	cc (cc)	vv (vv)	Control (cc)=0-101 (Sequence data)	Q
Cn	pp (pp)	-- --	Program Change (Prog/Combi change)	*2 P
Dn	vv (vv)	-- --	Channel Pressure (After Touch)	T
En	bb (bb)	bb (bb)	Bender Change (Joy Stick X)	C

A.Pdl : Assignable Pedal

A.SW : Assignable Switch

S Chg : Transmitted when change a Song No.(Seq. mode). (Track's Status = EXT,EX2,BTH)

C/S Chg : Transmitted when change a Combination or Song No.(Seq. mode). (Track's Status = EXT,EX2,BTH)

n : MIDI Channel No. (0 - 15) Usually Global Channel.

When in Combination/Sequencer mode, each timbre's/track's channel.(Status = EXT,EX2 or BTH)

g : Always Global Channel No. (0 - 15)

ENA = A : Always Enabled

C : Enabled when Enable Control Change in Global mode is checked

P : Enabled when Enable Program Change in Global mode is checked

PB: Enabled when Enable Program and Bank Change in Global mode is checked
T : Enabled when Enable After Touch in Global mode is checked
Q : Enabled when Sequencer is playing(transmit), recording(receive)

*1 : kk = 24 - 108 : TRITON Le 61 (61keys + Transpose)
= 16 - 115 : TRITON Le 76 (76keys + Transpose)
= 00 - 127 : Sequencer and Arpeggiator

*2 : Program	Combination	MIDI Out[Hex] (Bank Map is KORG)	(Bank Map is GM(2))
BankA 000 - 127 : BankA 000 - 127 :	mm,bb,pp	= 00,00, 00 - 7F	= 3F,00, 00 - 7F
B 000 - 127 : B 000 - 127 :		00,01, 00 - 7F	3F,01, 00 - 7F
C 000 - 127 : C 000 - 127 :		00,02, 00 - 7F	3F,02, 00 - 7F
D 000 - 127 :	:	00,03, 00 - 7F	3F,03, 00 - 7F
G 001 - 128 :	:	79,00, 00 - 7F	79,00, 00 - 7F
g(d) 001 - 128 :	:	78,00, 00 - 7F	78,00, 00 - 7F

*3 : ARP ON/OFF :[Bn,63,00,Bn,62,02,Bn,06,mm] mm = 00(Off),7F(On)
ARP-GATE (REALTIME CONTROLS C Knob2) :[Bn,63,00,Bn,62,0A,Bn,06,mm] mm = 00-7F
ARP-VELOCITY (REALTIME CONTROLS C Knob3) :[Bn,63,00,Bn,62,0B,Bn,06,mm] mm = 00-7F

When in Program/Combination mode, Global channel.
When in Sequencer mode, Control Track's channel.

1-2 SYSTEM COMMON MESSAGES

[H] :Hex, [D] :Decimal

Status	Second	Third	Description (Transmitted when)
[Hex]	[H] [D]	[H] [D]	
F2	ss (ss)	tt (tt)	Song Position Pointer
			ss : Least significant [LSB] *4
			tt : Most significant [MSB] *4
F3	ss (ss)		Song Select (Song or Cue List is selected)
			ss : Song(0-127)/Cue List(0-19) No.

Transmits Song Position Pointer message when in Sequencer mode (Internal Clock)
Transmits Song Select message when in Sequencer mode (Internal Clock)

*4 : For example, if time signature is 4/4 or 8/8, tt,ss = 00,10 means one measure.

1-3 SYSTEM REALTIME MESSAGES

Status[Hex]	Description (Transmitted when ...)
F8	Timing Clock (Always in Prog/Combi/Seq/Global mode) *
FA	Start (START in Seq mode) *
FB	Continue (Continue START in Seq mode) *
FC	Stop (STOP in Seq mode) *
FE	Active Sensing (Always)

* Transmits these messages when MIDI Clock in Global mode is Internal.

1-4 SYSTEM EXCLUSIVE

1-4-1 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (NON REALTIME)

DEVICE INQUIRY REPLY (Transmits when received a INQUIRY MESSAGE REQUEST)

[F0,7E,0g,06,02,42,63,00,mm,00,nn,00,vv,00,F7] 3rd byte g : Global Channel
6th byte 42 : KORG ID
7th byte 63 : TRITON Le Music Workstation ID
9th byte mm : TRITON Le Music Workstation Member Code
TRITON Le 61 mm = 01
TRITON Le 76 mm = 0A
TRITON Le 88 mm = 13
11th byte nn : System No. (01 -)
13th byte vv : System Version (01 -)

1-4-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (REALTIME)

Master Volume

[F0,7F,0g,04,01,vv,mm,F7] 3rd byte g : Global Channel

6th byte vv : Value(LSB)

7th byte mm : Value(MSB)

mm,vv = 00,00 - 7F,7F : Min - Max

2.RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

[H] :Hex, [D] :Decimal

Status	Second	Third	Description (Use)	ENA
[Hex]	[H] [D]	[H] [D]		
8n	kk (kk)	xx (xx)	Note Off	A
9n	kk (kk)	00 (00)	Note Off	A
9n	kk (kk)	vv (vv)	Note On (vv)=1-127	A
An	kk (kk)	vv (vv)	Poly Key Pressure (as AMS)	T
Bn	00 (00)	mm (mm)	Bank Select(MSB) (for Prog/Combi change)	*1 PB
Bn	01 (01)	vv (vv)	Modulation1 (as Joy Stick +Y)	C
Bn	02 (02)	vv (vv)	Modulation2 (as Joy Stick -Y)	C
Bn	04 (04)	vv (vv)	Foot Pedal (as AMS & FX Dmod Src =Pedal)	C
Bn	05 (05)	vv (vv)	Portamento Time	C
Bn	06 (06)	vv (vv)	Data Entry (MSB) (for RPC edit)	C
Bn	07 (07)	vv (vv)	Volume	C
Bn	08 (08)	vv (vv)	Balance Control (for Post IFX Panpot control)	*2 C
Bn	0A (10)	vv (vv)	Panpot	C
Bn	0B (11)	vv (vv)	Expression	C
Bn	0C (12)	vv (vv)	Effect Control 1 (as FX Dmod Src =FX1)	C
Bn	0D (13)	vv (vv)	Effect Control 2 (as FX Dmod Src =FX2)	C
Bn	10 (16)	vv (vv)	Multi Purpose Ctrl1 (as AMS & FX Dmod Src =Ribbon)	C
Bn	11 (17)	vv (vv)	Multi Purpose Ctrl2 (as AMS & FX Dmod Src =KnobM1)	C
Bn	12 (18)	vv (vv)	Multi Purpose Ctrl3 (as AMS & FX Dmod Src =Slider)	C
Bn	13 (19)	vv (vv)	Multi Purpose Ctrl4 (as AMS & FX Dmod Src =KnobM2)	C
Bn	14 (20)	vv (vv)	(as AMS & FX Dmod Src =KnobM3)	C
Bn	15 (21)	vv (vv)	(as AMS & FX Dmod Src =KnobM4)	C
Bn	20 (32)	bb (bb)	Bank Select(LSB) (for Prog / Combi change)	*1 PB
Bn	26 (38)	vv (vv)	Data Entry (LSB) (for RPC edit)	C
Bn	40 (64)	vv (vv)	Hold1 (as Damper)	C
Bn	41 (65)	<=3F/>=40(<=63/>=64)	Portamento Off/On	C
Bn	42 (66)	<=3F/>=40(<=63/>=64)	Sostenuto Off/On	C
Bn	43 (67)	vv (vv)	Soft Pedal	C
Bn	46 (70)	vv (vv)	Sound Controller 1 (for Sustain Level control)	C
Bn	47 (71)	vv (vv)	Sound Controller 2 (for Resonance/HPF Cutoff ctrl)	C
Bn	48 (72)	vv (vv)	Sound Controller 3 (for Release Time control)	C
Bn	49 (73)	vv (vv)	Sound Controller 4 (for Attack Time control)	C
Bn	4A (74)	vv (vv)	Sound Controller 5 (for LPF Cutoff control)	C
Bn	4B (75)	vv (vv)	Sound Controller 6 (for Decay Time control)	C
Bn	4C (76)	vv (vv)	Sound Controller 7 (for LFO1 Speed control)	C
Bn	4D (77)	vv (vv)	Sound Controller 8 (for LFO1 Pitch Depth control)	C
Bn	4E (78)	vv (vv)	Sound Controller 9 (for LFO1 Delay control)	C
Bn	4F (79)	vv (vv)	Sound Controller 10 (for Filter EG Intensity ctrl)	C
Bn	50 (80)	vv (vv)	Multi Purpose Ctrl5 (as AMS & FX Dmod Src =SW 1)	C
Bn	51 (81)	vv (vv)	Multi Purpose Ctrl6 (as AMS & FX Dmod Src =SW 2)	C
Bn	52 (82)	vv (vv)	Multi Purpose Ctrl7 (as AMS & FX Dmod Src =Foot SW)	C
Bn	53 (83)	vv (vv)	Multi Purpose Ctrl8 (as AMS & FX Dmod Src =CC#83)	C
Bn	5B (91)	vv (vv)	Effect 1 Depth (for Send 2 Level control)	C
Bg	5C (92)	00/!=00 (00/!=000)	Effect 2 Depth (for Insert FX Off/On)	C
Bn	5D (93)	vv (vv)	Effect 3 Depth (for Send 1 Level control)	C
Bg	5E (94)	00/!=00 (00/!=000)	Effect 4 Depth (for Master FX1 Off/On)	C
Bg	5F (95)	00/!=00 (00/!=000)	Effect 5 Depth (for Master FX2 Off/On)	C
Bn	60 (96)	00 (00)	Data Increment (for RPC edit)	C
Bn	61 (97)	00 (00)	Data Decrement (for RPC edit)	C
Bn	62 (98)	ss (ss)	NRPN Param No.(LSB) (for NRPN select)	*3 C
Bn	63 (99)	tt (tt)	NRPN Param No.(MSB) (for NRPN select)	*3 C
Bn	64(100)	0r (0r)	RPN Param No. (LSB) (for RPN select)	*4 C
Bn	65(101)	00 (00)	RPN Param No. (MSB) (for RPN select)	*4 C
Bn	cc (cc)	vv (vv)	Control data (for Seq. recording (cc)=0-101)	C,Q

Bn	78(120)	00	(00)	All Sound Off	C
Bn	79(121)	00	(00)	Reset All Controllers	C
Bn	7A(122)	00/7F	(00/127)	Local Control Off/On	A
Bn	7B(123)	00	(00)	All Notes Off	A
Bn	7C(124)	00	(00)	Omni Mode Off (as All Notes Off)	A
Bn	7D(125)	00	(00)	Omni Mode On (as All Notes Off)	A
Bn	7E(126)	00 - 10	(00 - 16)	Mono Mode On (as All Notes Off)	A
Bn	7F(127)	00	(00)	Poly mode On (as All Notes Off)	A
Cn	pp (pp)	--	--	Program Change (for Prog/Combi change)	*1 P
Dn	vv (vv)	--	--	Channel Pressure (as After Touch)	T
En	bb (bb)	bb	(bb)	Bender Change	C

AMS : Alternate Modulation Source

FX Dmod Src: Effect Dynamic Modulation Source

n : MIDI Channel No. (0 - 15) Usually Global Channel.

When in Combination/Sequencer mode, each timbre's/track's channel.(Status is INT or BTH)

g : Always Global Channel No. (0 - 15)

x : Random

ENA : Same as Transmitted data

*1 : When Bank Map in Global mode is KORG;

MIDI In [Hex]	Program	Combination
mm,bb,pp = 00,00,	00 - 7F : Bank A	000 - 127 : Bank A 000 - 127
00,01,	00 - 7F : B	000 - 127 : B 000 - 127
00,02,	00 - 7F : C	000 - 127 : C 000 - 127
00,03,	00 - 7F : D	000 - 127
79,00,	00 - 7F : G	001 - 128
78,00,	00 - 7F : g(d)	001 - 128
38,00,	00 - 7F : G	001 - 128
3E,00,	00 - 7F : g(d)	001 - 128

When Bank Map in Global mode is GM(2);

MIDI In [Hex]	Program	Combination
mm,bb,pp = 3F,00,	00 - 7F : Bank A	000 - 127 : Bank A 000 - 127
3F,01,	00 - 7F : B	000 - 127 : B 000 - 127
3F,02,	00 - 7F : C	000 - 127 : C 000 - 127
3F,03,	00 - 7F : D	000 - 127
79,00,	00 - 7F : G	001 - 128
78,00,	00 - 7F : g(d)	001 - 128
00,00,	00 - 7F : G	001 - 128
38,00,	00 - 7F : G	001 - 128
3E,00,	00 - 7F : g(d)	001 - 128
3F,7F,	00 - 7F : Mute (KORG MUTE)	
(XG) 00,01 -	:	Assign correspond program in G
(GS) 01,00 -	:	Assign correspond program in G

*2 : n : When in Program/Sampling mode, Global channel

When in Combination/Sequencer mode, each IFX's channel.

*3 : tt,ss = 00,02 : Arpeggiator Off/On

= 00,0A : Arpeggiator Gate control

= 00,0B : Arpeggiator Velocity control

When in Program/Combination mode, Global channel message is valid.

When in Sequencer mode, Control Track's channel message is valid.

Data Entry LSB value has no effect.

tt,ss = 01,08 : Vibrato Rate

tt,ss = 01,09 : Vibrato Depth

tt,ss = 01,0A : Vibrato Delay

tt,ss = 01,20 : Filter Cutoff

tt,ss = 01,21 : Filter Resonance

tt,ss = 01,63 : EG Attack Time

tt,ss = 01,64 : EG Decay Time

tt,ss = 01,66 : EG Release Time

tt,ss = 14,kk : Drum Filter Cutoff *

tt,ss = 15,kk : Drum Filter Resonance *

tt,ss = 16,kk : Drum EG Attack Time *

Data Entry LSB value has no effect.

Data Entry LSB value has no effect for Pitch Bend Sensitivity and Coarse Tune.

[H] :Hex, [D] :Decimal

Receive Song Select when in Sequencer mode (External Clock)

2-3 SYSTEM REALTIME MESSAGES

*6 : Receive when MIDI Clock in Global mode is External.

2-4 SYSTEM EXCLUSIVE

2-4-1 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (NON REALTIME)

DEVICE INQUIRY (When received this message, transmits INQUIRY MESSAGE REPLY)

[F0,7E,nn,06,01,F7]	3rd byte	nn : Channel = 0 - F : Global Channel
		= 7F : Any Channel

GM System On (Receive when in Sequencer mode)

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[ F0,7E,nn,09,01,F7 ]           3rd byte  nn : Channel = 0 - F : Global Channel
                                   = 7F      : Any Channel
```

2-4-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES (REALTIME)

Master Volume

[F0,7F,0g,04,01,vv,mm,F7]	3rd byte	g : Global Channel
	6th byte	vv : Value(LSB)
	7th byte	mm : Value(MSB)
		mm,vv = 00.00 - 7F.7F : Min - Max

Master Balance

```
[ F0,7F,0g,04,02,vv,mm,F7 ]      3rd byte   g : Global Channel
                                     6th byte   vv : Value(LSB)
                                     7th byte   mm : Value(MSB)
                                     mm,vv = 00.00:Left, 40.00:Center, 7F.7F:Right
```

[F0,7F,0g,04,03,vv,mm,F7]

6th byte vv : Value(LSB)

```
7th byte mm : Value(MSB)
```

$$\text{mm,vv} = 20,00:-50, \quad 40,00:+00, \quad 60,00:+50$$

[F0,7F,0g,04,04,vv,mm,F7]

3rd byte g : Global Channel

6th byte vv : Value(LSB)

7th byte mm : Value(MSB)

mm,vv = 34,00:-12, 40,00:+00, 4C,00:+12

3.KORG System Exclusive Function Code (5th byte of Exclusive message) List

Func	Description
12	MODE REQUEST
10	CURRENT PROGRAM PARAMETER DUMP REQUEST
1C	PROGRAM PARAMETER DUMP REQUEST
19	CURRENT COMBINATION PARAMETER DUMP REQUEST
1D	COMBINATION PARAMETER DUMP REQUEST
18	SEQUENCE DATA DUMP REQUEST
0E	GLOBAL DATA DUMP REQUEST
0D	DRUMKIT DATA DUMP REQUEST
34	ARPEGGIO PATTERN DATA DUMP REQUEST
0F	ALL DATA(PROG,COMBI,GLOBAL,DRUMS,ARPPAT,SEQ) DUMP REQUEST
11	PROGRAM WRITE REQUEST
1A	COMBINATION WRITE REQUEST
40	CURRENT PROGRAM PARAMETER DUMP
4C	PROGRAM PARAMETER DUMP
49	CURRENT COMBINATION PARAMETER DUMP
4D	COMBINATION PARAMETER DUMP
48	SEQUENCE DATA DUMP
51	GLOBAL DATA DUMP
52	DRUMKIT DATA DUMP
69	ARPEGGIO PATTERN DATA DUMP
50	ALL DATA(PROG,COMBI,GLOBAL,DRUMS,ARPPAT,SEQ) DUMP
4E	MODE CHANGE
41	PARAMETER CHANGE
53	DRUMKIT PARAMETER CHANGE
6D	ARPEGGIO PATTERN PARAMETER CHANGE

(1) MODE REQUEST R

12 Function

F7 End of E:

ceives this message, and tra

(2) CURRENT PROGRAM PARAMETER DUMP REQUEST R

10 Function

00	Reserved
----	----------

F7 End of E:

ceives this message, and tra

(3) PROGRAM PARAMETER DUMP REQUEST R

1C	Function
----	----------

00kk 00bb Kind and Bank (*1)

0ppp pppp Program No.

00 Reserved

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F7                End of Excl
(Receives this message, and transmits Func=4C or Func=24 message)

(4) CURRENT COMBINATION PARAMETER DUMP REQUEST                                R
F0, 42, 3g, 63   Excl Header
19               Function
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=49 or Func=24 message)

(5) COMBINATION PARAMETER DUMP REQUEST                                        R
F0, 42, 3g, 63   Excl Header
1D               Function
00kk 00bb        Kind and Bank                (*2)
0ccc cccc        Combination No.
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=4D or Func=24 message)

(6) SEQUENCE DATA (In Memory) DUMP REQUEST                                R
F0, 42, 3g, 63   Excl Header
18               Function
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=48 or Func=24 message)

(7) GLOBAL DATA DUMP REQUEST                                              R
F0, 42, 3g, 63   Excl Header
0E               Function
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=51 or Func=24 message)

(8) DRUMKIT DATA (In Memory) DUMP REQUEST                                R
F0, 42, 3g, 63   Excl Header
0D               Function
0000 000k        Kind                        (*3-1)
000d dddd        Drumkit No.                (*3-1)
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=52 or Func=24 message)

(9) ARPEGGIO PATTERN DATA DUMP REQUEST                                    R
F0, 42, 3g, 63   Excl Header
34               Function
0k00 0000        Kind                        (*3-2)
0000 000a        ARPPAT No.(MSB)            (*3-2)
0aaa aaaa        ARPPAT No.(LSB)            (*3-2)
F7               End of Excl
(Receives this message, and transmits Func=69 or Func=24 message)

(10) ALL DATA(PROG,COMBI,GLOBAL,DRUMS,ARPPAT,SEQ) DUMP REQUEST           R
F0, 42, 3g, 63   Excl Header
0F               Function
00               Reserved
F7               End of Excl
(Receives this message, and transmits Func=50 or Func=24 message)

(11) PROGRAM WRITE REQUEST                                                R
F0, 42, 3g, 63   Excl Header
11               Function
0000 00bb        Write Program Bank          (*4-1)
0ppp pppp        Write Program No.
F7               End of Excl

```

(Receives this message, write the data and transmits Func=21 or Func=22 message)

(12) COMBINATION WRITE REQUEST R

F0, 42, 3g, 63 Excl Header
 1A Function
 0000 00bb Write Combination Bank (*4-2)
 0ccc cccc Write Combination No.
 F7 End of Excl

(Receives this message, write the data and transmits Func=21 or Func=22 message)

(13) CURRENT PROGRAM PARAMETER DUMP R , T

F0, 42, 3g, 63 Excl Header
 40 Function
 0000 0000 Reserved
 0ddd dddd Data (*5, TABLE 1)
 F7 End of Excl

(Receives this message & data, and transmits Func=23 or Func=24 message)

Receives Func=10 message, and transmits this message & data.

When Enter the EDIT PROGRAM Page or Edit the PERFORMANCE EDIT by SW, transmits this message & data.

(14) PROGRAM PARAMETER DUMP R , T

F0, 42, 3g, 63 Excl Header
 4C Function
 0000 0000 Reserved
 00kk 00bb Kind and Bank (*6)
 0ppp pppp Program No.
 0ddd dddd Data (*5,*7, TABLE 1)
 F7 End of Excl

(Receives this message & data, and transmits Func=23 or Func=24 message)

Receives Func=1C message, and transmits this message & data.

Transmits this message & data when DATA DUMP is executed.

(15) CURRENT COMBINATION PARAMETER DUMP R , T

F0, 42, 3g, 63 Excl Header
 49 Function
 00 Reserved
 0ddd dddd Data (*5,*8, TABLE 2)
 F7 End of Excl

(Receives this message & data, and transmits Func=23 or Func=24 message)

Receives Func=19 message, and transmits this message & data.

When the Combi No. is changed by SW, transmits this message & data.

(16) COMBINATION PARAMETER DUMP R , T

F0, 42, 3g, 63 Excl Header
 4D Function
 00 Reserved
 00kk 00bb Kind and Bank (*9)
 0ccc cccc Combination No.
 0ddd dddd Data (*5,*10, TABLE 2)
 F7 End of Excl

(Receives this message & data, and transmits Func=23 or Func=24 message)

Receives Func=1D message, and transmits this message & data.

Transmits this message & data when DATA DUMP is executed.

(17) SEQUENCE DATA (In Memory) DUMP R , T

F0, 42, 3g, 63 Excl Header
 48 Function
 00 Reserved
 0sss ssss Seq. data Size [4Bytes] (*11-1)
 : :
 0mmm mmmm CSeqdataMgr (*5,*11-2, TABLE 9)
 : :
 0ccc cccc CueLists Data (*5,*11-3, TABLE 10)


```

:
0ddd dddd      Sequence Data      (*5,*11-4, TABLE 11)
F7              End of Excl
(Receives this message & data, and transmits Func=23 or Func=24 message)
Receives Func=18 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(18) GLOBAL DATA DUMP                                     R , T
F0, 42, 3g, 63 Excl Header
51              Function
00              Reserved
0ddd dddd      Data                (*5,*12, TABLE 3)
:
F7              End of Excl
(Receives this message & data, and transmits Func=23 or Func=24 message)
Receives Func=0E message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(19) DRUMKIT DATA DUMP                                    R , T
F0, 42, 3g, 63 Excl Header
52              Function
0000 000k      Kind                (*13-1)
000d dddd      Drumkit No.        (*13-1)
00              Reserved
0ddd dddd      Data                (*5,*14, TABLE 6)
:
F7              End of Excl
(Receives this message & data, and transmits Func=23 or Func=24 message)
Receives Func=0D message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(20) ARPEGGIO PATTERN DATA DUMP                          R , T
F0, 42, 3g, 63 Excl Header
69              Function
0k00 0000      Kind                (*13-2)
0000 000a      ARPPAT No. MSB    (*13-2)
0aaa aaaa      ARPPAT No. LSB    (*13-2)
0ddd dddd      Data                (*5,*15 TABLE 7)
:
F7              End of Excl
(Receives this message & data, and transmits Func=23 or Func=24 message)
Receives Func=34 message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(21) ALL DATA (PROG,COMBI,GLOBAL,DRUMS,ARPPAT,SEQ) DUMP  R , T
F0, 42, 3g, 63 Excl Header
50              Function
0000 0000      Reserved ( sa Available Program Bank )
00              Reserved
0sss ssss      Seq. data Size     [4Bytes](*11-1)
:
0ddd dddd      Data                (*5,*16, TABLE 1,2,3,6,7,9,10,11)
F7              End of Excl
(Receives this message & data, and transmits Func=23 or Func=24 message)
Receives Func=0F message, and transmits this message & data.
Transmits this message & data when DATA DUMP is executed.

(22) MODE CHANGE                                          R , T
F0, 42, 3g, 63 Excl Header
4E              Function
0000 0mmm      Mode                (*17)
F7              End of Excl
(Receives this message & data, changes the Mode, and transmits Func=23 or Func=24
When the Mode is changed by SW, transmits this message & data.

```

(23) PARAMETER CHANGE R , T

```

F0, 42, 3g, 63 Excl Header
41      Function
0000 0mmm      Mode          (*17)
0000 0000      Parameter ID (MSB)
0ppp pppp      Parameter ID (LSB)      (TABLE 1,2,4,5,8,11)
0000 0000      Parameter SUB ID (MSB)
0qqq qqqq      Parameter SUB ID (LSB)  (TABLE 1,2,4,5,8,11)
0vvv vvvv      Value      (MSB bit7-18) (*18)
0vvv vvvv      Value      (LSB bit0-6)  (*18)
F7      End of Excl

```

(Receives this message & data, and transmits Func=23 or Func=24 messages)

When the Parameter No. is changed by SW, transmits this message & data.

(24) DRUMKIT PARAMETER CHANGE R , T

```

F0, 42, 3g, 63 Excl Header
53      Function
0kkk kkkk      Drumkit No.      kk = 00-3F ( : 00-63)
0sss ssss      Index No.        ss = 00-7F ( : C-1-G9)
0000 0000      Parameter No. (MSB)      (TABLE 6)
0ppp pppp      Parameter No. (LSB)      (TABLE 6)
0vvv vvvv      Value      (MSB bit7~18) (*18)
0vvv vvvv      Value      (LSB bit0~6)  (*18)
F7      End of Excl

```

(Receives this message & data, and transmits Func=23 or Func=24 messages)

(25) ARPEGGIO PATTERN PARAMETER CHANGE R , T

```

F0, 42, 3g, 63 Excl Header
6D      Function
0000 000b      Arpeggio AorB(b = 0 : Arpeggio A, 1 : Arpeggio B)
0000 00aa      Pattern No.(MSB)          (bit 7)
0aaa aaaa      Pattern No.(LSB)          (bit 6-0) a = 000-147 ( : 000-327)
0sss ssss      Step No.(ss = 00-2F ( : 00-47))
0ttt tttt      Tone No.(tt = 00-0B ( : 00-11))
0ppp pppp      Parameter No.(MSB)        (TABLE 7)
0000 0000      Parameter No.(LSB)        (TABLE 7)
0vvv vvvv      Value(MSB bit7~18)        (*18)
0vvv vvvv      Value(LSB bit0~6)         (*18)
F7      End of Excl

```

(Receives this message & data, and transmits Func=23 or Func=24 messages)

(26) MODE DATA T

```

F0, 42, 3g, 63 Excl Header
42      Function
0000 0mmm      Mode          (*17)
00      Reserved
0000 s0ss      Setuped data1  (*19)
000d dddd      Setuped data2  (*19)
00      Reserved
F7      End of Excl

```

(Receives FUNC=12 message, and transmits this message & data.)

(27) MIDI IN DATA FORMAT ERROR T

```

F0, 42, 3g, 63 Excl Header
26      MIDI IN DATA FORMAT ERROR
0ccc cccc      Error Code      (*20)
F7      End of Excl

```

(Transmits this message when there is an error in the MIDI IN message (ex.data length).)

(28) DATA LOAD COMPLETED (ACK) T

```

F0, 42, 3g, 63 Excl Header
23      DATA LOAD COMPLETED
F7      End of Excl

```

(Transmits this message when DATA LOAD,PROCESSING have been completed.)

(29) DATA LOAD ERROR (NAC) T
 F0, 42, 3g, 63 Excl Header
 24 DATA LOAD ERROR
 0ccc cccc Error Code (*21)
 F7 End of Excl
 (Transmits this message when DATA LOAD,PROCESSING have not been completed.)

(30) WRITE COMPLETED T
 F0, 42, 3g, 63 Excl Header
 21 WRITE COMPLETED
 F7 End of Excl
 (Transmits this message when DATA WRITE MIDI have been completed.)

(31) WRITE ERROR T
 F0, 42, 3g, 63 Excl Header
 22 WRITE ERROR
 0ccc cccc Error Code (*22)
 F7 End of Excl
 (Transmits this message when DATA WRITE MIDI have not been completed (ex. protected).)

//////// * The each bank's value is same as value of the internal bank

*1
 k = 0 : All Programs
 1 : 1 Bank Programs (Use b)
 2 : 1 Program (Use b & pp)
 b = 0-3 : Bank A-D

*2
 k = 0 : All Combinations
 1 : 1 Bank Combinations (Use b)
 2 : 1 Combination (Use b & cc)
 b = 0-2 : Bank A-C

*3
 3-1
 k = 0 : All Drumkits
 1 : 1 Drumkit (Use d)
 d = 0-17 : Drumkit 0-23
 3-2
 k = 0 : All Arpeggio Patterns
 1 : 1 Arpeggio Pattern(Use a)
 a = 0-D7 : Arpeggio Pattern 0-215

*4 PROGRAM,COMBINATION BANK
 4-1
 b = 0-3 : Program Bank A-D
 4-2
 b = 0-2 : Combination Bank A-C

*5 DATA CONVERT METHOD(INTERNAL DATA<-->MIDI DATA)

Internal 7byte data <--convert--> MIDI 8 byte data	
example) Internal data(bit image)	MIDI data(bit image)
Aaaaaaaa	0GFEDCBA
Bbbbbbbb	0aaaaaaa
Cccccccc	0bbbbbbb
Dddddddd	0ccccccc
Eeeeeeee	0ddddddd
Ffffffff	0eeeeeee
Gggggggg	0fffffff
Hhhhhhhh	0ggggggg
Iiiiiiii	0NMLKJIH
:	0hhhhhhh

:	:
Vvvvvvvvv	000000WV
Wwwwwwww	0vvvvvvvv
	0wwwwwww
	11110111 (EOX=F7H)

*6

k = 0 : All Bank Program (Use v)
 1 : 1 Bank Program (Use v & b)
 2 : 1 Program (Use b & pp)

b = 0-3 : Bank A-D

*7 PROGRAM PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT

*8 COMBINATION PARAMETER (IN CURRENT BUFFER) DUMP FORMAT

*9

k = 0 : All Bank Combination
 1 : 1 Bank Combination (Use b)
 2 : 1 Combination (Use b & cc)

b = 0-2 : Bank A-C

*10 COMBINATION PARAMETER (IN INTERNAL MEMORY) DUMP FORMAT

*11 SEQUENCE DATA'S OFFSET,SIZE,ADDRESS FORMAT

11-1 : Sequence Data Size (4Bytes)
 'Seq Data Size' is a all song data's length. A unit is Byte.
 [Data Size (bit21~27)],
 [Data Size (bit14~20)],
 [Data Size (bit 7~13)],
 [Data Size (bit 0~ 6)]

11-2 : CSeqdataMgr

11-3 : CueLists Data

11-4 : Sequence Data

*12 GLOBAL DATA (IN INTERNAL MEMORY) DUMP FORMAT

*13

13-1

k = 0 : All Drumkits
 1 : 1 Drumkit (Use d)

d = 0-17 : Drumkit 0-23

13-2

k = 0 : All Arpeggio Patterns
 1 : 1 Arpeggio Pattern(Use a)

a = 0-D7 : Arpeggio Pattern 0-215

*14 DRUMS DATA (IN INTERNAL MEMORY) DUMP FORMAT

*15 ARPPAT DATA (IN INTERNAL MEMORY) DUMP FORMAT

*16 All DATA (PROG,COMBI,GLOBAL,DRUMS,ARPPAT,SEQ) DUMP FORMAT

[Global Data],
 [Drums Data],
 [Arpeggio Pattern DATA],
 [All Combination Parameter Data],
 [All Program Parameter Data],
 [CSeqdataMgr],
 [CueLists Data],
 [Sequence Data]

*17

mmm = 0 : COMBI PLAY

1 : COMBI EDIT
2 : PROG PLAY
3 : PROG EDIT
4 : SEQUENCER
5 : SAMPLING
6 : GLOBAL
7 : DISK

*18 VALUE DATA FORMAT (Use at PARAMETER CHANGE, DRUM KIT PARAMETER CHANGE)
Bit15-13 of Value Data is the Sign Flag, and each bit has the same value
Value Data SSSHHHHH LLLLLLLL (S=Sign H,L=13bit data)
MIDI Data 0SHHHHHL 0LLLLLLL

*19
ss : bit 0,1 = 0 : Note Receive is EVEN, = 1 : ODD, = 2 : ALL
bit 3 = 0 : Seq Clock is internal, = 1 : External

dd : bit 0 = 0 : Prog Mem is not protected, = 1 : protected
bit 1 = 0 : Combi Mem is not protected, = 1 : protected
bit 2 = 0 : Seq Mem is not protected, = 1 : protected
bit 3 = 0 : Drums Mem is not protected, = 1 : protected
bit 4 = 0 : ArpPat Mem is not protected, = 1 : protected

*20
cc = 0 : Received Data Length is wrong
1 : Received Function code is not registered
40 : Another type error

*21
cc = 0 : Dest Memory is protected
1 : Dest Bank/Prog/Param is not exist
2 : The mode is wrong
3 : Memory over flow
40 : Another type error

*22
cc = 0 : Dest Memory is protected
1 : Dest Bank/Prog is not exist
2 : The mode is wrong
40 : Another type error

[TABLE 1] PROGRAM PARAMETERS 2001.8.14
No. : No. in the PROGRAM DUMP DATA.
PARA No. : Parameter ID & SUB ID [Hex] for PARAMETER CHANGE.
Left side of ',' is Parameter ID, and right side is SUB ID.

No. (bit)	PARAMETER	DATA(Hex): VALUE	DESCRIPTION	PARA No.
00	PROGRAM NAME (Head)			
:	:	20~~7F		----
15	PROGRAM NAME (Tail)			
INSERT EFFECT PARAMETERS				
16				1F,00
:	IFX (24Bytes)			:
31	(See midifx.txt.)			1F,??
32	Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate		1E,00
b0~~b5	(Reserved)			----
33				
b6	ON/OFF	0:Off, 1:ON		1E,01
b7	(Reserved)			1E,1E
34	(Reserved)			----
35	(Reserved)			----

36	PAN	00~~7F : L001~~R127	1E,02
37	BUS Select	00:L/R, 01:1, 02:2, 05:1/2, 07:Off	1E,03
38	Send 1 Level	00~~7F : 00~~127	1E,04
39	Send 2 Level	00~~7F : 00~~127	1E,05
MASTER EFFECT PARAMETERS			
40			21,00
:	MFX1 Effect Parameter Structure (16Bytes)		:
55	(See midifx.txt.)		21,??
56	MFX1 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	20,00
b0~~b5	(Reserved)		----
57	b6	MFX1 ON/OFF	20,02
	b7	(Reserved)	----
58	RIFF NO.(MSB)	0000~~017F : 0~~383	
59	RIFF NO.(LSB)		00,17
60			22,00
:	MFX2 Effect Parameter Structure (16Bytes)		:
75	(See midifx.txt.)		22,??
76	MFX2 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	20,01
b0~~b5	(Reserved)		----
77	b6	MFX2 ON/OFF	20,03
	b7	(Reserved)	----
78	RIFF TRANSPOSE	E8~~18 : -24~~24	00,18
79	(Reserved)		----
80	MFX1 Return Level	00~~7F : 00~~127	20,04
81	MFX2 Return Level	00~~7F : 00~~127	20,05
b0~~b1	MFX Chain Signal	0:LR Mix, 1:L Only, 2:R Only	20,08
82	b2	MFX Chain Direction	20,07
	b3	MFX Chain ON/OFF	20,06
83	MFX Chain Level	00~~7F : 00~~127	20,09
84	Master EQ Low Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	23,00
85	Master EQ Mid Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	23,01
86	Master EQ High Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	23,02
87	Master EQ Low Fc	00~~31 , 0:20Hz ~ 49:1.00kHz	23,03
88	Master EQ Mid Fc	00~~61 , 0:300Hz ~ 97:10.00kHz	23,04
89	Master EQ High Fc	00~~C3 , 0:500Hz ~ 195:20.00kHz	23,05
90	Master EQ Mid Q	00~~5F , 0:0.5 ~ 95:10.0 (0.1 step)	23,06
91	Master EQ Low DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	23,07
92	Master EQ High DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	23,08

93	(Reserved)		----
94	Arp.Gate Control	40~~3F : -64~~63	----
95	Arp.Velocity Control	40~~3F : -64~~63	----
ARPEGGIATOR PARAMETERS			
96	TEMPO	28~~F0 : 40~~240	1C,00
97	SWITCH	0:OFF, 1:ON	1C,01
98	PATTERN NO.	00~~DC : 0~~220	1D,00
99	b0~~1 OCTAVE	00~~03 : 0~~4	1D,02
	b2~~4 RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4	1D,01
100	GATE	00~~64 : 0~~100[%], 65:Step	1D,03
101	VELOCITY	01~~7F : 1~~127, 80:Key, 81:Step	1D,04
102	SWING	9C~~64 : -100~~100	1D,05
103	bit0 SORT	0:OFF, 1:ON	1D,06
	bit1 LATCH	0:OFF, 1:ON	1D,07
	bit2 KEY SYNC.	0:OFF, 1:ON	1D,08
	bit3 KEYBOARD	0:OFF, 1:ON	1D,09
104	TOP KEY	00~~7F : C-1~~G9	1D,0A
105	BOTTOM KEY	00~~7F : C-1~~G9	1D,0B
106	TOP VELOCITY	01~~7F : 1~~127	1D,0C
107	BOTTOM VELOCITY	01~~7F : 1~~127	1D,0D
COMMON PARAMETERS			
108	b0~~1 OSCILLATOR MODE	0:Single, 1:Double, 2:Drums	00,01
	bit2 ASSIGN	0:Poly, 1:Mono	00,02
	bit3 LEGATO	0:OFF, 1:ON	00,03
	b4~~5 PRIORITY	0:Low, 1:High, 2:Last	00,04
	bit6 SINGLE TRIGGER	0:OFF, 1:ON	00,05
	bit7 HOLD	0:OFF, 1:ON	00,06
109	b0~~6 BUS SELECT	00:L/R, 01:IFX, 06~~07:1~~2, 0A:1/2, 0C:Off	00,07
	bit7 USE DKIT SETTING	0:OFF, 1:ON	00,08
110	CATEGORY	00~~0F : 0~~15	----
111	SCALE TYPE	00~~1A : **1-1	00,09
112	SCALE KEY	00~~0B : C~~B	00,0A
113	RANDOM INTENSITY	00~~07 : 0~~7	00,0B
114	b0~~5 SW 1 ASSIGN TYPE	00~~0C : **1-2	00,0C
	bit6 SW1 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary	00,10
	bit7 SW 1 ON/OFF	0:OFF, 1:ON	00,0E

	b0~~5	SW 2 ASSIGN TYPE	00~~0C : **1-2		00,0D
115	bit6	SW2 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary		00,11
	bit7	SW 2 ON/OFF	0:OFF, 1:ON		00,0F
	b0~~6	KNOB 1 ASSIGN TYPE	00~~7C : **1-3		00,12
116	bit7	REALTIME CONTROLS	0:A, 1:B		00,16
	b0~~6	KNOB 2 ASSIGN	00~~7C : **1-3		00,13
117	bit7	REALTIME CONTROLS MSB	0:A or B, 1:C **1-8		00,19
118		KNOB 3 ASSIGN	00~~7C : **1-3		00,14
119		KNOB 4 ASSIGN	00~~7C : **1-3		00,15
PITCH EG					
120		START LEVEL	9D~~63 : -99~~99		01,00
121		ATTACK TIME	00~~63 : 00~~99		01,01
122		ATTACK LEVEL	9D~~63 : -99~~99		01,02
123		DECAY TIME	00~~63 : 00~~99		01,03
124		RELEASE TIME	00~~63 : 00~~99		01,04
125		RELEASE LEVEL	9D~~63 : -99~~99		01,05
126		A.M.SOURCE (LEVEL1)	00~~2A : **1-4	Alternate Modulation	01,08
127		INT BY A.M.(LEVEL1)	9D~~63 : -99~~99		01,09
128		A.M.SOURCE (LEVEL2)	00~~2A : **1-4	Alternate Modulation	01,0A
129		INT BY A.M.(LEVEL2)	9D~~63 : -99~~99		01,0B
130		A.M.SOURCE (TIME)	00~~2A : **1-4	Alternate Modulation	01,06
131		INT BY A.M.(TIME)	9D~~63 : -99~~99		01,07
	b0~~1	START (A.M.LEVEL1)	FF:-, 0:OFF, 1:+		01,0E
	b2~~3	ATTACK (A.M.LEVEL1)	FF:-, 0:OFF, 1:+		01,0F
132	b4~~5	START (A.M.LEVEL2)	FF:-, 0:OFF, 1:+		01,10
	b6~~7	ATTACK (A.M.LEVEL2)	FF:-, 0:OFF, 1:+		01,11
	b0~~1	ATTACK (A.M.TIME)	FF:-, 0:OFF, 1:+		01,0C
133	b2~~3	DECAY (A.M.TIME)	FF:-, 0:OFF, 1:+		01,0D
OSCILLATOR 1					
	bit7	HI START OFFSET	0:OFF, 1:ON		02,02
134	bit6	HI REVERSE	0:OFF, 1:ON		02,03
	b0~~5	HI SAMPLE NO.(MSB)	00~~03E7 : 00~~999		02,01
135		HI SAMPLE NO.(LSB)			
136		HI BANK	0:ROM,1:RAM (,9:Piano)	(9: is available for Le88)	02,00
137		HI LEVEL	00~~7F : 00~~127		02,04
	bit7	LOW START OFFSET	0:OFF, 1:ON		02,07

138	bit6	LOW REVERSE	0:OFF, 1:ON		02,08
	b0~~6	LOW SAMPLE NO.(MSB)	00~~03E7 : 00~~999		02,06
139		LOW SAMPLE NO.(LSB)			
140		LOW BANK	0:ROM,1:RAM (,9:Piano)	(9: is available for Le88)	02,05
141		LOW LEVEL	00~~7F : 00~~127		02,09
142		DELAY START	00~~60,61 : **1-5		02,0A
143		VEL M.SAMPLE SW	01~~7F : 01~~127	(For Vel Split)	02,0B
144		VEL ZONE BOTTOM	01~~7F : 01~~127		02,0C
145		VEL ZONE TOP	01~~7F : 01~~127		02,0D
OSCILLATOR 1 LFO 1					
	b0~~4	WAVEFORM	0~~14 : **1-6		03,00
146	bit7	KEY SYNC.	0:OFF, 1:ON		03,01
147		FREQUENCY	00~~63 : 00~~99		03,02
148		OFFSET	9D~~63 : -99~~99		03,03
149		DELAY	00~~63 : 00~~99		03,04
150		FADE	00~~63 : 00~~99		03,05
	bit7	MIDI/TEMPO SYNC.	0:OFF, 1:ON		03,0A
151	b4~~6	SYNC BASE NOTE	0:16,1:8T,2:8,3:4T,4:4,5:2T,6:2,7:1		03,0B
	b0~~3	TIMES	00~~0F : 01~~16		03,0C
152		A.M.SOURCE (FREQ1)	00~~2A : **1-4	Alternate Modulation	03,06
153		INT BY A.M.(FREQ1)	9D~~63 : -99~~99		03,07
154		A.M.SOURCE (FREQ2)	00~~2A : **1-4	Alternate Modulation	03,08
155		INT BY A.M.(FREQ2)	9D~~63 : -99~~99		03,09
OSCILLATOR 1 LFO 2					
156	:	Same as OSCILLATOR 1 LFO 1 (146~~155)			:
165		(10 Bytes)			04,0C
OSCILLATOR 1 PITCH					
166		OCTAVE	FE~~01 : 32~~4 [']		05,00
167		TRANSPOSE	F4~~0C : -12~~12		05,01
168		TUNE (MSB)	FB50~~04B0 : -1200~~1200		05,02
169		TUNE (LSB)	[Cent]		
170		A.M.SOURCE (PITCH)	00~~2A : **1-4	Alternate Modulation	05,03
171		INT BY A.M.(PITCH)	8D~~73 : **1-7		05,04
172		PITCH SLOPE	F6~~14 : -1.0~~2.0		05,05
173		INT BY PITCH EG	8D~~73 : **1-7		05,06
174		A.M.SOURCE (P.EG)	00~~2A : **1-4	Alternate Modulation	05,07

175	INT BY A.M.(P.EG)	8D~~73 :	**1-7		05,08
176	INT BY OSC-1 LFO 1	8D~~73 :	**1-7		05,09
177	INT BY OSC-1 LFO 2	8D~~73 :	**1-7		05,0A
bit0	PORTAMENTO	0:DIS, 1:ENA			05,0B
178	bit1	PORTAMENTO FINGERED	0:OFF, 1:ON		05,0C
179	PORTAMENTO TIME	00~~7F :	00~~127		05,0D
180	PITCH BY JS(+X)	C4~~0C :	-60~~12		05,0E
181	PITCH BY JS(-X)	C4~~0C :	-60~~12		05,0F
182	PITCH BY RIBBON(X)	F4~~0C :	-12~~12		05,10
183	(RESERVED)				----
184	LFO1 INT BY JS(+Y)	8D~~73 :	**1-7		05,11
185	LFO2 INT BY JS(+Y)	8D~~73 :	**1-7		05,12
186	A.M.SOURCE(LFO1INT)	00~~2A :	**1-4	Alternate Modulation	05,13
187	INT BY A.M.(LFO1INT)	8D~~73 :	**1-7		05,14
188	A.M.SOURCE(LFO2INT)	00~~2A :	**1-4	Alternate Modulation	05,15
189	INT BY A.M.(LFO2INT)	8D~~73 :	**1-7		05,16
OSCILLATOR 1 FILTER					
190	TYPE	0:LPF+RESO, 1:LPF+HPF			06,00
191	TRIM	00~~63 :	00~~99		06,01
192	RESONANCE	00~~63 :	00~~99		06,02
193	A.M.SOURCE(RESO.)	00~~2A :	**1-4	Alternate Modulation	06,03
194	INT BY A.M.(RESO.)	9D~~63 :	-99~~99		06,04
195	A.M.SOURCE(EG)	00~~2A :	**1-4	Alternate Modulation	06,05
196	A.M.SOURCE(LFO1)	00~~2A :	**1-4	Alternate Modulation	06,06
197	A.M.SOURCE(LFO2)	00~~2A :	**1-4	Alternate Modulation	06,07
OSCILLATOR 1 FILTER A					
198	FREQUENCY	00~~63 :	00~~99		07,00
199	KBD TRACK INTENSITY	9D~~63 :	-99~~99		07,01
200	A.M.SOURCE(MOD1)	00~~2A :	**1-4	Alternate Modulation	07,02
201	INT BY A.M.(MOD1)	9D~~63 :	-99~~99		07,03
202	A.M.SOURCE(MOD2)	00~~2A :	**1-4	Alternate Modulation	07,04
203	INT BY A.M.(MOD2)	9D~~63 :	-99~~99		07,05
204	EG INTENSITY	9D~~63 :	-99~~99		07,06
205	EG VELOCITY	9D~~63 :	-99~~99		07,07
206	INT BY LFO 1	9D~~63 :	-99~~99		07,08
207	INT BY LFO 2	9D~~63 :	-99~~99		07,09

208	LFO 1 BY JS(-Y)	9D~~63 : -99~~99		07,0A
209	LFO 2 BY JS(-Y)	9D~~63 : -99~~99		07,0B
210	INT BY A.M.(EG)	9D~~63 : -99~~99	Alternate Modulation	07,0C
211	INT BY A.M.(LFO1)	9D~~63 : -99~~99	Alternate Modulation	07,0D
212	INT BY A.M.(LFO2)	9D~~63 : -99~~99	Alternate Modulation	07,0E
OSCILLATOR 1 FILTER B				
213				08,00
:	Same as OSCILLATOR 1 FILTER B (198~~212)			:
227	(15 Bytes)			08,0E
OSCILLATOR 1 FILTER EG				
228	START LEVEL	9D~~63 : -99~~99		09,00
229	ATTACK TIME	00~~63 : 00~~99		09,01
230	ATTACK LEVEL	9D~~63 : -99~~99		09,02
231	DECAY TIME	00~~63 : 00~~99		09,03
232	BREAK POINT LEVEL	9D~~63 : -99~~99		09,04
233	SLOPE TIME	00~~63 : 00~~99		09,05
234	SUSTAIN LEVEL	9D~~63 : -99~~99		09,06
235	RELEASE TIME	00~~63 : 00~~99		09,07
236	RELEASE LEVEL	9D~~63 : -99~~99		09,08
b7~~b6	RELEASE (A.M.TIME1)	FF:-, 0:OFF, 1:+		09,12
b5~~b4	SLOPE (A.M.TIME1)	FF:-, 0:OFF, 1:+		09,11
237	b3~~b2	DECAY (A.M.TIME1)	FF:-, 0:OFF, 1:+	09,10
	b1~~b0	ATTACK (A.M.TIME1)	FF:-, 0:OFF, 1:+	09,0F
b7~~b6	RELEASE (A.M.TIME2)	FF:-, 0:OFF, 1:+		09,16
b5~~b4	SLOPE (A.M.TIME2)	FF:-, 0:OFF, 1:+		09,15
238	b3~~b2	DECAY (A.M.TIME2)	FF:-, 0:OFF, 1:+	09,14
	b1~~b0	ATTACK (A.M.TIME2)	FF:-, 0:OFF, 1:+	09,13
b5~~b4	BREAK (A.M.LEVEL)	FF:-, 0:OFF, 1:+		09,19
239	b3~~b2	ATTACK (A.M.LEVEL)	FF:-, 0:OFF, 1:+	09,18
	b1~~b0	START (A.M.LEVEL)	FF:-, 0:OFF, 1:+	09,17
240	A.M.SOURCE(TIME1)	00~~2A : **1-4	Alternate Modulation	09,09
241	INT BY A.M.(TIME1)	9D~~63 : -99~~99		09,0A
242	A.M.SOURCE(TIME2)	00~~2A : **1-4	Alternate Modulation	09,0B
243	INT BY A.M.(TIME2)	9D~~63 : -99~~99		09,0C
244	A.M.SOURCE(LEVEL)	00~~2A : **1-4	Alternate Modulation	09,0D
245	INT BY A.M.(LEVEL)	9D~~63 : -99~~99		09,0E
OSCILLATOR 1 FILTER KEYBOARD TRACK				

246	KEY LOW	00~~7F : C-1~~G9		0A,00
247	RAMP LOW	9D~~63 : -99~~99		0A,01
248	KEY HIGH	00~~7F : C-1~~G9		0A,02
249	RAMP HIGH	9D~~63 : -99~~99		0A,03
OSCILLATOR 1 AMPLIFIER				
250	LEVEL	00~~7F : 00~~127		0B,00
251	INT BY VELOCITY	9D~~63 : -99~~99		0B,01
252	A.M.SOURCE	00~~2A : **1-4	Alternate Modulation	0B,02
253	INT BY A.M.	9D~~63 : -99~~99		0B,03
254	INT BY LFO 1	9D~~63 : -99~~99		0B,04
255	INT BY LFO 2	9D~~63 : -99~~99		0B,05
256	A.M.SOURCE(LFO1)	00~~2A : **1-4	Alternate Modulation	0B,06
257	INT BY A.M.(LFO1)	9D~~63 : -99~~99		0B,07
258	A.M.SOURCE(LFO2)	00~~2A : **1-4	Alternate Modulation	0B,08
259	INT BY A.M.(LFO2)	9D~~63 : -99~~99		0B,09
OSCILLATOR 1 AMPLIFIER EG				
260	START LEVEL	00~~63 : 00~~99		0C,00
261	ATTACK TIME	00~~63 : 00~~99		0C,01
262	ATTACK LEVEL	00~~63 : 00~~99		0C,02
263	DECAY TIME	00~~63 : 00~~99		0C,03
264	BREAK POINT LEVEL	00~~63 : 00~~99		0C,04
265	SLOPE TIME	00~~63 : 00~~99		0C,05
266	SUSTAIN LEVEL	00~~63 : 00~~99		0C,06
267	RELEASE TIME	00~~63 : 00~~99		0C,07
268	A.M.SOURCE(TIME1)	00~~2A : **1-4	Alternate Modulation	0C,08
269	INT BY A.M.(TIME1)	9D~~63 : -99~~99		0C,09
270	A.M.SOURCE(TIME2)	00~~2A : **1-4	Alternate Modulation	0C,0A
271	INT BY A.M.(TIME2)	9D~~63 : -99~~99		0C,0B
272	A.M.SOURCE(LEVEL)	00~~2A : **1-4	Alternate Modulation	0C,0C
273	INT BY A.M.(LEVEL)	9D~~63 : -99~~99		0C,0D
274	b0~~1 ATTACK (A.M.TIME1)	FF:-, 0:OFF, 1:+		0C,0E
	b2~~3 DECAY (A.M.TIME1)	FF:-, 0:OFF, 1:+		0C,0F
	b4~~5 SLOPE (A.M.TIME1)	FF:-, 0:OFF, 1:+		0C,10
	b6~~7 RELEASE (A.M.TIME1)	FF:-, 0:OFF, 1:+		0C,11
	b0~~1 ATTACK (A.M.TIME2)	FF:-, 0:OFF, 1:+		0C,12
	b2~~3 DECAY (A.M.TIME2)	FF:-, 0:OFF, 1:+		0C,13

**1-4 : 0 : Off 1 : Pitch EG 2 : Filter EG 3 : Amp EG
 4 : LFO 1 5 : LFO 2 6 : Flt KTrk +/+ 7 : Flt KTrk +/-
 8 : Flt KTrk 0/+ 9 : Flt KTrk +/-0 A : Amp KTrk +/+ B : Amp KTrk +/-
 C : Amp KTrk 0/+ D : Amp KTrk +/-0 E : Note Number F : Velocity
 10 : Poly After 11 : After Touch 12 : JS X 13 : JS+Y:CC#01
 14 : JS-Y:CC#02 15 : JS+Y & AT/2 16 : JS-Y & AT/2 17 : Pedal:CC#04
 18 : Ribbon:CC#16 19 : Slider:CC#18 1A : KnobMod1:#17 1B : KnobMod2:#19
 1C : KnobMod3:#20 1D : KnobMod4:#21 1E : KnobMod1 [+] 1F : KnobMod2 [+]
 20 : KnobMod3 [+] 21 : KnobMod4 [+] 22 : Damper:#64 23 : Porta.SW:#65
 24 : Sostenuto:#66 25 : Soft:CC#67 26 : SW 1:CC#80 27 : SW 2:CC#81
 28 : Foot SW:#82 29 : MIDI:CC#83 2A : Tempo

**1-5 : Data Time[mSec] Step
 00~~19 : 00~~ 50 (2mSec)
 1A~~28 : 60~~ 200 (10mSec)
 29~~38 : 250~~1000 (50mSec)
 39~~60 : 1100~~5000 (100mSec)
 61 : KeyOff

**1-6 : 0 : Triangle 0 1 : Triangle 90 2 : Triangle Random 3 : Saw 0
 4 : Saw 180 5 : Square 6 : Sine 7 : Guitar
 8 : Exponential Triangle 9 : Exponential Saw Down A : Exponential Saw Up B : Step Triangle-4
 C : Step Triangle-6 D : Step Saw-4 E : Step Saw-6 F : Random1 (S/H)
 10 : Random2 (S/H) 11 : Random3 (S/H) 12 : Random4 (Vector) 13 : Random5 (Vector)
 14 : Random6 (Vector)

**1-7 : 8D~~C3 : -12.00~~ -1.20 (0.20 Step)
 C4~~CD : -1.00~~ -0.55 (0.05 Step)
 CE~~32 : -0.50~~ +0.50 (0.01 Step)
 33~~3C : +0.55~~ +1.00 (0.05 Step)
 3D~~73 : +1.20~~+12.00 (0.20 Step)

**1-8 : Realtime Controls Format
 REALTIME CONTROLS MSB(No.212 bit7) : C
 REALTIME CONTROLS(No.213 bit7) : c
 Cc = 0 : A
 = 1 : B
 = 2 : C

[TABLE 2] 1 COMBINATION PARAMETERS 2001.8.15
 PARA No. : Parameter ID & SUB ID [HEX] for PARAMETER CHANGE. n : Timbre No.(1~~8:T1~~T8)

No. (bit)	PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
00	COMBI. NAME (Head)			
:	:	20~~7F		----
15	COMBI. NAME (Tail)			
INSERT EFFECT PARAMETERS				
16				0D,00
:	IFX (24Bytes)			:
31	(See midifx.txt.)			0D,??
32	Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate		0C,00
b0~~b5	Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel,		0C,06
		11:All Routed		
33				
b6	ON/OFF	0:Off, 1:ON		0C,01
b7	(Reserved)			----
34	(Reserved)			----
35	(Reserved)			----
36	PAN	00~~7F : L001~~R127		0C,02

37	BUS Select	00:L/R, 01:1, 02:2, 05:1/2, 07:Off	0C,03
38	Send 1 Level	00~~7F : 00~~127	0C,04
39	Send 2 Level	00~~7F : 00~~127	0C,05
MASTER EFFECT PARAMETERS			
40			0F,00
:	MFX1 Effect Parameter Structure (16Bytes)		:
55	(See midifx.txt.)		0F,??
56	MFX1 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	0E,00
b0~~b5	MFX1 Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	0E,0A
57			
b6	MFX1 ON/OFF	0:Off, 1:ON	0E,02
b7	(Reserved)		----
58	(Reserved)		----
59	(Reserved)		----
60			10,00
:	MFX2 Effect Parameter Structure (16Bytes)		:
75	(See midifx.txt.)		10,??
76	MFX2 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	0E,01
b0~~b5	MFX2 Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	0E,0B
77			
b6	MFX2 ON/OFF	0:Off, 1:ON	0E,03
b7	(Reserved)		----
78	(Reserved)		----
79	(Reserved)		----
80	MFX1 Return Level	00~~7F : 00~~127	0E,04
81	MFX2 Return Level	00~~7F : 00~~127	0E,05
b0~~b1	MFX Chain Signal	0:LR Mix, 1:L Only, 2:R Only	0E,08
82			
b2	MFX Chain Direction	0:MFX1 -> MFX2, 1:MFX2 -> MFX1	0E,07
b3	MFX Chain ON/OFF	0:Chain Off, 1:On	0E,06
83	MFX Chain Level	00~~7F : 00~~127	0E,09
84	Master EQ Low Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	11,00
85	Master EQ Mid Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	11,01
86	Master EQ High Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	11,02
87	Master EQ Low Fc	00~~31 , 0:20Hz ~ 49:1.00kHz	11,03
88	Master EQ Mid Fc	00~~61 , 0:300Hz ~ 97:10.00kHz	11,04
89	Master EQ High Fc	00~~C3 , 0:500Hz ~ 195:20.00kHz	11,05
90	Master EQ Mid Q	00~~5F , 0:0.5 ~ 95:10.0 (0.1 step)	11,06
91	Master EQ Low DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	11,07
92	Master EQ High DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	11,08
93	Mst.EQ Ctrl.Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	0E,0C

94	(Reserved)		----
95	(Reserved)		----
ARPEGGIATOR PARAMETERS			
96	TEMPO	28~F0 : 40~240	09,00
bit0	SWITCH	0:OFF, 1:ON	09,01
97 bit1	ARPEGGIATOR RUN A	0:OFF, 1:ON	09,02
bit2	ARPEGGIATOR RUN B	0:OFF, 1:ON	09,03
ARPEGGIATOR A			
98	PATTERN NO.	00~DC : 0~220	0A,00
b0~1	OCTAVE	00~03 : 1~4	0A,02
99 b2~4	RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4	0A,01
100	GATE	00~64 : 0~100[%], 65:Step	0A,03
101	VELOCITY	01~7F : 1~127, 80:Key, 81:Step	0A,04
102	SWING	9C~64 : -100~100	0A,05
bit0	SORT	0:OFF, 1:ON	0A,06
bit1	LATCH	0:OFF, 1:ON	0A,07
103 bit2	KEY SYNC.	0:OFF, 1:ON	0A,08
bit3	KEYBOARD	0:OFF, 1:ON	0A,09
104	TOP KEY	00~7F : C-1~G9	0A,0A
105	BOTTOM KEY	00~7F : C-1~G9	0A,0B
106	TOP VELOCITY	01~7F : 1~127	0A,0C
107	BOTTOM VELOCITY	01~7F : 1~127	0A,0D
ARPEGGIATOR B			
108			0B,00
:	Same as ARPEGGIATOR A (98~107)		:
117	(10 Bytes)		0B,0D
COMMON PARAMETERS			
b0~3	CATEGORY	00~0F : 0~15	----
118 b4~7	(RESERVED)		----
119	SCALE TYPE	00~1A : **1-1	00,01
120	SCALE KEY	00~0B : C~B	00,02
121	RANDOM INTENSITY	00~07 : 0~7	Normal = 0 00,03
b0~5	SW 1 ASSIGN TYPE	00~0C : **1-2	00,04
122 bit6	SW1 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary	00,08
bit7	SW 1 ON/OFF	0:OFF, 1:ON	00,06
b0~5	SW 2 ASSIGN TYPE	00~0C : **1-2	00,05
123 bit6	SW2 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary	00,09

	bit7	SW 2 ON/OFF	0:OFF, 1:ON		00,07
	b0~~6	Knob 1 Assign Type	00~~7C : **1-3		00,0A
124	bit7	REALTIME CONTROLS	0:A, 1:B **2-2		00,0E
	b0~~6	Knob 2 Assign Type	00~~7C : **1-3		00,0B
125	bit7	REALTIME CONTROLS MSB	0:A or B, 1:C **2-2		00,0F
126		Knob 3 Assign Type	00~~7C : **1-3		00,0C
127		Knob 4 Assign Type	00~~7C : **1-3		00,0D
TIMBRE 1 PARAMETER					
128		PROGRAM NO.	00~~7F : 00~~127		n,00
129		PROGRAM BANK	00~~05 : Bank A~~g(d)		n,00
	b0~~b4	MIDI CHANNEL	00~~0F : MIDI Channel 1~~16, 10:Global Channel		n,04
130	b5~~b7	STATUS	0:INT, 1:Off, 2:EXT, 3:EX2		n,03
131		BANK SELECT MSB	00~~7F : 00~~127 Available only		n,05
132		BANK SELECT LSB	00~~7F : 00~~127 when status is EX2.		n,06
133		VOLUME	00~~7F : 00~~127		n,02
134		PITCH BEND RANGE	E7:PROG, E8~~18 : -24~~24		n,0C
135		TRANSPOSE	E8~~18 : -24~~24		n,0A
136		DETUNE MSB			
			FB50~~4B0: -1200~~1200		n,0B
137		DETUNE LSB			
138		DELAY START	00~~60,61 : **1-5		n,0D
139		PAN	00:RND, 01~~7F : L001~~R127		n,01
140		SEND 1 LEVEL	00~~7F : 00~~127		n,29
141		SEND 2 LEVEL	00~~7F : 00~~127		n,2A
142		(RESERVED)			---
	b0~~ 2	DRUMKIT IFX Patch	0:IFX, 5:L/R (1~~4:Not Available)		n,2B
143	b3~~ 7	(RESERVED)			---
144		BUS SELECT	00:DKit, 01:L/R, 02:IFX, 07~~08:1~~2, 0B:1/2, 0D:Off		n,28
	bit0	PROGRAM CHANGE FILT	0:DIS, 1:ENA		n,0F
	bit1	AFTER TOUCH FILTER	0:DIS, 1:ENA		n,10
	bit2	DAMPER FILTER	0:DIS, 1:ENA		n,11
	bit3	PORTAMENTO FILTER	0:DIS, 1:ENA		n,12
145	bit4	JS(X) AS AMS FILTER	0:DIS, 1:ENA		n,13
	bit5	JS(Y+) FILTER	0:DIS, 1:ENA		n,14
	bit6	JS(Y-) FILTER	0:DIS, 1:ENA		n,15
	bit7	RIBBON FILTER	0:DIS, 1:ENA		n,16
	bit0	ASSIGN KNOB 1 FILTER	0:DIS, 1:ENA		n,17

	bit1	ASSIGN KNOB 2 FILTER	0:DIS, 1:ENA		n,18
	bit2	ASSIGN KNOB 3 FILTER	0:DIS, 1:ENA		n,19
	bit3	ASSIGN KNOB 4 FILTER	0:DIS, 1:ENA		n,1A
146	bit4	ASSIGN SW 1 FILTER	0:DIS, 1:ENA		n,1B
	bit5	ASSIGN SW 2 FILTER	0:DIS, 1:ENA		n,1C
	bit6	FOOT PEDAL/SW FILTER	0:DIS, 1:ENA		n,1D
	bit7	OTHER CONTROL FILTER	0:DIS, 1:ENA		n,1E
	b0,1	FORCE OSC MODE	0:Program, 1:Poly, 2:Mono, 3:Mono Legato		n,07
	b2,3	OSC SELECT	0:BOTH, 1:OSC1, 2:OSC2		n,08
147	b4,5	ARPEGGIATOR ASSIGN	0:OFF, 1:A, 2:B		n,27
	bit6	USE PROGRAM'S SCALE	0:DIS, 1:ENA		n,0E
148		PORTAMENT TIME	FF:PRG, 00:Off, 01~~7F : 1~~127		n,09
149		KEY Z TOP	00~~7F : C-1~~G9		n,1F
150		KEY Z BOTTOM	00~~7F : C-1~~G9		n,22
	b0~~3	KEY Z TOP SLOPE	0~~F: **2-1		n,20
151	b4~~7	KEY Z BOTTOM SLOPE	0~~F: **2-1		n,21
152		VEL Z TOP	01~~7F : 1~~127		n,23
153		VEL Z BOTTOM	01~~7F : 1~~127		n,26
	b0~~3	VEL Z TOP SLOPE			n,24
154	b4~~7	VEL Z BOTTOM SLOPE	0~~F : 0~~120 (Vel fade slope = Para value * 8)		n,25
155		(RESERVED)			----
	TIMBRE 2~~8 PARAMETERS				
156					n,00
:		Same as TIMBRE 1 (128~~155)		:	
351		(28 * 7 = 196 Bytes)			n,2B

**2-1 : 0 : 0 1 : 1 (Semi tone) 2 : 2 3 : 3
4 : 4 5 : 6 (0.5 Oct) 6 : 8 7 : 10
8 : 12 (1 Oct) 9 : 18 (1.5 Oct) A : 24 (2 Oct) B : 30 (2.5 Oct)
C : 36 (3 Oct) D : 48 (4 Oct) E : 60 (5 Oct) F : 72 (6 Oct)

**2-2 : Realtime Controls Format
REALTIME CONTROLS MSB(No.220 bit7) : C
REALTIME CONTROLS(No.221 bit7) : c
Cc = 0 : A
= 1 : B
= 2 : C

[TABLE 3] GLOBAL PARAMETERS
No. : No. in the GLOBAL DUMP DATA.

No. (bit)	PARAMETER	DATA(Hex) : VALUE	DESCRIPTION
GLOBAL PARAMETER			
00	MASTER TUNE	CE~~32 : -50~~50[Cent]	
01	KEY TRANSPOSE	F4~~0C : -12~~12	

02	VELOCITY CURVE	0~~7 : 1~~8	
03	AFTER TOUCH CURVE	0~~7 : 1~~8	
bit0	FOOT SW POLARITY	0:-, 1:+	
bit1	DAMPER POLARITY	0:-, 1:+	
04 bit2	CONVERT POSITION	0:PreMIDI, 1:PostMIDI	
bit3	PROG AUTO ARP	0:OFF, 1:ON	
bit4	COMBI AUTO ARP	0:OFF, 1:ON	
05	FOOT SW ASSIGN	00~~13 : **3-1	
06	FOOT PEDAL ASSIGN	00~~11 : **3-2	
07	(RESERVED)		
08	USER SCALE (Octave)	9D~~63 : -99~~99	
:		[Cent]	
199	(12*16 Bytes)		
200	USER SCALE	9D~~63 : -99~~99	
:	(All Notes)	[Cent]	
327	(128 Bytes)		
328	PROG CATEGORY NAME	20~~7F	
:		[ASCII CODE]	
583	(16*16 Bytes)		
584	COMBI CATEGORY NAME	20~~7F	
:		[ASCII CODE]	
839	(16*16 Bytes)		
AUDIO INPUT 1			
840	LEVEL	00~~7F : 00~~127	
841	PAN	00~~7F : L000~~R127	
842	SEND 1 LEVEL	00~~7F : 00~~127	
843	SEND 2 LEVEL	00~~7F : 00~~127	
844	BUS SELECT	00:L/R, 01:IFX, 06~~07:1~~2, 0A:1/2, 0C:Off	
AUDIO INPUT 2			
845			
:	Same as AUDIO INPUT 1 (840~~844)		
849	(5 Bytes)		

**3-1 : 0 : OFF	1 : FOOT SW:CC#82	2 : PORTAMENTO SW:CC#65	3 : SOSTENUTO:CC#66
4 : SOFT:CC#67	5 : ARPEGGIO SW	6 : PROGRAM UP	7 : PROGRAM DOWN
8 : SONG START/STOP	9 : SONG PUNCH IN/OUT	A : CUE REPEAT CONTROL	B : JS+Y:CC#01
C : JS-Y:CC#02	D : KNOB 1	E : KNOB 2	F : KNOB 3
10 : KNOB 4	11 : SW 1	12 : SW 2	13 : TAP TEMPO
**3-2 : 0 : OFF	1 : MASTER VOLUME	2 : FOOT PEDAL:CC#04	3 : PORTAMENTO TIME:CC#05
4 : VOLUME:CC#07	5 : POST IFX PAN:CC#08	6 : PAN:CC#10	7 : EXPRESSION:CC#11
8 : FX CONTROL 1:CC#12	9 : FX CONTROL 2:CC#13	A : MFX SEND 1:CC#93	B : MFX SEND 2:CC#91
C : JS+Y:CC#01	D : JS-Y:CC#02	E : KNOB 1	F : KNOB 2
10 : KNOB 3	11 : KNOB 4		

[TABLE 4] Parameter No. at COMBINATION PLAY mode
n(=0~~7) : Timbre 1~~8

PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
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TIMBRE PARAMETER			
BANK/PROGRAM	00~2FF : A000~g(d)128		n,00
PAN	00:RND, 01~~7F : L001~~R127		n,01
VOLUME	00~~7F : 0~~127		n,02
STATUS	0:INT, 1:Off, 2:EXT, 3:EX2		n,03
ARPEGGIO PARAMETER			
TEMPO	28~~F0 : 40~~240		08,00
SWITCH	0:OFF, 1:ON		08,01
ARPEGGIATOR RUN A	0:OFF, 1:ON		08,02
ARPEGGIATOR RUN B	0:OFF, 1:ON		08,03
GATE	C0~~3F : -64~~63	Arpeggiator gate knob parameter	08,04
VELOCITY	C0~~3F : -64~~63	Arpeggiator velocity knob parameter	08,05
ARPEGGIATOR-A PARAMETER			
PATTERN NO.	00~~DC : 0~~220	00~~04:P000~~P004, 05~~DC:U000~~U215	09,00
RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4		09,01
OCTAVE	00~~03 : 1~~4		09,02
SORT	0:OFF, 1:ON		09,06
LATCH	0:OFF, 1:ON		09,07
KEY SYNC.	0:OFF, 1:ON		09,08
KEYBOARD	0:OFF, 1:ON		09,09
ARPEGGIATOR-B PARAMETER			
Same as ARPEGGIATOR-A PARAMETER			0A,00~~09
SWITCH PARAMETER			
SW 1 ON/OFF	0:OFF, 1:ON		0B,00
SW 2 ON/OFF	0:OFF, 1:ON		0B,01
	0:A, 1:B		0B,02
REALTIME CONTROLS	0:A or B, 1:C		0B,03

[TABLE 5]

Parameter No. at PROGRAM PLAY mode

2001.8.15

PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
PERFORMANCE EDITOR			
OCTAVE	FD~~03 : -3~~3		00,00
PITCH STRETCH	F4~~0C : -12~~12		00,01
OSC BALANCE	F6~~0A : -10~~10		00,02
AMP LEVEL	F6~~0A : -10~~10		00,03

ATTACK TIME	F6~~0A : -10~~10		00,04
DECAY TIME	F6~~0A : -10~~10		00,05
IFX BALANCE	F6~~0A : -10~~10		00,06
MFx BALANCE	F6~~0A : -10~~10		00,07
ARPEGGIATOR PARAMETER			
TEMPO	28~~F0 : 40~~240		01,00
SWITCH	0:OFF, 1:ON		01,01
GATE	C0~~3F : -64~~63	Arpeggiator gate knob parameter	01,02
VELOCITY	C0~~3F : -64~~63	Arpeggiator velocity knob parameter	01,03
PATTERN NO.	00~~DC : 0~~220	00~~04:P000~~P004, 05~~DC:U000~~U215	02,00
RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4		02,01
OCTAVE	00~~03 : 1~~4		02,02
SORT	0:OFF, 1:ON		02,06
LATCH	0:OFF, 1:ON		02,07
KEY SYNC.	0:OFF, 1:ON		02,08
KEYBOARD	0:OFF, 1:ON		02,09
SWITCH PARAMETER			
SW 1 ON/OFF	0:OFF, 1:ON		03,00
SW 2 ON/OFF	0:OFF, 1:ON		03,01
REALTIME CONTROLS	0:A, 1:B		03,02
	0:A or B, 1:C		03,03

[TABLE 6] 1 DRUMKIT PARAMETERS
No. : No. in the DRUMKIT DUMP DATA.

No. (bit)	PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
00	DRUMKIT NAME (Head)			
:	:	20~~7F		----
15	DRUMKIT NAME (Tail)			
KEY=C-1 PARAMETERS				
16	HIGHER BANK	0:ROM, 1:RAM		00/0B
bit0	HIGHER START OFFSET	0:OFF, 1:ON		02/0D
bit1	HIGHER REVERSE	0:OFF, 1:ON		03/0E
18	HIGH SAMPLE NO(MSB)			
		00~~19C : 00~~412	Higher Vel's Drumsample	01/0C
19	HIGH SAMPLE NO(LSB)			
20	HIGHER LEVEL	9D~~63 : -99~~99		04/0F
21	HIGHER TRANSPOSE	C0~~3F : -64~~63		05/10
22	HIGHER TUNE	9D~~63 : -99~~99		06/11

23	HIGHER ATTACK LEVEL	C0~~3F : -64~~63		07/12
24	HIGHER DECAY LEVEL	C0~~3F : -64~~63		08/13
25	HIGHER CUTOFF LEVEL	C0~~3F : -64~~63		09/14
26	HIGH RESONANCE LEVEL	C0~~3F : -64~~63		0A/15
27	(RESERVED)			----
28	LOWER			
:	Same as HIGHER (16~~27)			
39	(12 Bytes)	(Above Parameter's right side of '/' is PARA No. of LOWER.)		
40	PAN	00:RND, 01~~7F : L001~~R127		16
41	BUS SELECT	00:L/R, 01:IFX, 06~~07:1~~2, 0A:1/2, 0C:Off		17
42	SEND 1 LEVEL	00~~7F: 00~~127		18
43	SEND 2 LEVEL	00~~7F: 00~~127		19
44	EXCLUSIVE GROUP	00:Off, 01~~7F : 001~~127		1A
bit0	VOICE ASSIGN	0:OFF, 1:ON		1B
bit1	SINGLE TRIGGER	0:OFF, 1:ON		1C
bit2	RECEIVE NOTE ON	0:DIS, 1:ENA		1D
bit3	RECEIVE NOTE OFF	0:DIS, 1:ENA		1E
46	VEL SAMPLE SW	01~~7F : 01~~127	For DRUMSAMPLE SELECT by Vel	1F
47	(RESERVED)			----
KEY=C#-1~~G9 PARAMETERS				
48				00
:	Same as KEY=C-1 (16~~47)			:
4111	(127 * 32 = 4064 Bytes)			1F

[TABLE 7] 1 ARPEGGIO PATTERN PARAMETERS

No. : No. in the ARPEGGIO PATTERN DUMP DATA.

No. (bit)	PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
00	ARP. NAME (Head)			
:	:	20~~7F		----
15	ARP. NAME (Tail)			
b0~~1	OCTAVE MOTION	0:Up, 1:Down, 2:Both, 3:Parallel		01
b2~~3	TYPE	0:As Played, 1:As Played(Fill), 2:Running Up, 3:Up&Down		00
bit4	tone MODE	0:Normal, 1:Fixed Note		03
bit5	FIXED NOTE MODE	0:As Played, 1:All Tones		04
17	LENGTH	01~~30 : 1~~48		02
18	(RESERVED)			----
19	(RESERVED)			----
20	tone 00 NOTE NO	00~~7F : C-1~~G9		05

21	TONE 01~~11 NOTE NO		05
:	Same as TONE 00 NOTE NO		:
31	(11 Bytes)		05
STEP 01 PARAMETERS			
32	PITCH OFFSET	D0~~30 : -48~~48	06
33	GATE	0:Off, 01~~64 : 1~~100[%], 65:Legato	07
34	VELOCITY	01~~7F : 1~~127, 80:Key	08
35	FLAM	9D~~63 : -99~~99	09
36 b0~~3	TONE8~~11	0:DIS, 1:ENA	0A
			:
37 b0~~7	TONE0~~7	0:DIS, 1:ENA	15
STEP 02~~48 PARAMETERS			
38			06
:	Same as STEP 01 (32~~37)		:
319	(6 * 47 = 282 Bytes)		15
----	ARPEGGIATOR SELECT	0:A, 1:B	16
		It's not dump data.	

[TABLE 8] Arpeggiator Parameter No. at GLOBAL

PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARA No.
PATTERN NO.	00~~D7 : 0~~215		39,00
RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4		39,01
OCTAVE	00~~03 : 1~~4		39,02
SORT	0:OFF, 1:ON		39,06
LATCH	0:OFF, 1:ON		39,07
KEY SYNC.	0:OFF, 1:ON		39,08
KEYBOARD	0:OFF, 1:ON		39,09

[TABLE 9] SEQUENCE DATA PARAMETERS

00	EVENT DATA START ADDRESS(MSB)	
:	: (4 Bytes)	
03	EVENT DATA START ADDRESS(LSB)	
04	EVENT DATA FREE AREA START ADDRESS(MSB)	
:	: (4 Bytes)	
07	EVENT DATA FREE AREA START ADDRESS(LSB)	
08	SONG 00 EVENT DATA ADDRESS(MSB)	
:	: (4 Bytes)	
11	SONG 00 EVENT DATA ADDRESS(LSB)	
12	SONG 001~~199, EVENT DATA ADDRESS	
:	Same as SONG 00 EVENT (08~~11)	
807	(4 * 199 = 796 Bytes)	
808	CURRENT SONG NO.	00~~C7 : 00~~199

809	CURRENT PAT NO.	00~~95 : 00~~149
810	CURRENT FX SONG NO.	00~~C7 : 00~~199
811	VALID SONG	00~~C8 : 00~~200
812	VALID SONG NO.	
:		00~~C7 : 00~~199
1011	(200 Bytes)	

[TABLE 10] 1 CUE LIST DATA 2000.12.22

CUE LIST		
00	CUE LIST NAME (Head)	
:	:	20~~7F
15	CUE LIST NAME (Tail)	
16	TEMPO	28~~F0 : 40~~240
17	TEMPO MODE	0:AUTO, 1:MANUAL
18	(RESERVED)	
19	(RESERVED)	
STEP 01		
20	SONG NO.	0~~C7 : S000~~S199 FE : Continue to step01 FF : End
b0~~6	REPEAT	00~~3F:1~~64, 7F:FS
21	bit7	Load FX
		0:OFF, 1:ON
STEP 02~~100		
22		
:	Same as STEP 01 (20~~21)	
219	(2 * 99 = 198 Bytes)	

[TABLE 11] 1 SONG SEQUENCE DATA

PARAM No. : Parameter ID & SUB ID [HEX] for PARAMETER CHANGE. n : Track No.(1~~10:T1~~T16)

No. (bit)	PARAMETER	DATA(Hex) : VALUE	DESCRIPTION	PARAM No.
00	SONG NAME (Head)			
:	:	20~~7F		----
15	SONG NAME (Tail)			
INSERT EFFECT PARAMETERS				
16				37,00
:	IFX (24Bytes)			:
31	(See midifx.txt.)			37,??
32	Effect Type	00~~59 , 00:No Effect ~~ 89:Reverb - Gate		36,00
b0~~b5	Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel, 11:All Routed		36,06
33				
b6	ON/OFF	0:Off, 1:ON		36,01
b7	(Reserved)			----

34	(Reserved)		----
35	(Reserved)		----
36	PAN	00~~7F : L001~~R127	36,02
37	BUS Select	00:L/R, 01:1, 02:2, 05:1/2, 07:Off	36,03
38	Send 1 Level	00~~7F : 00~~127	36,04
39	Send 2 Level	00~~7F : 00~~127	36,05
MASTER EFFECT PARAMETERS			
40			39,00
:	MFX1 Effect Parameter Structure (16Bytes)		:
55	(See midifx.txt.)		39,??
56	MFX1 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	38,00
b0~~b5	MFX1 Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	38,0A
57	b6	MFX1 ON/OFF	0:Off, 1:ON
	b7	(Reserved)	----
58	(Reserved)		----
59	(Reserved)		----
60			3A,00
:	MFX2 Effect Parameter Structure (16Bytes)		:
75	(See midifx.txt.)		3A,??
76	MFX2 Effect Type	00~~59 , 00:No Effect ~ 89:Reverb - Gate	38,01
b0~~b5	MFX2 Control Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	38,0B
77	b6	MFX2 ON/OFF	0:Off, 1:ON
	b7	(Reserved)	----
78	(Reserved)		----
79	(Reserved)		----
80	MFX1 Return Level	00~~7F : 00~~127	38,04
81	MFX2 Return Level	00~~7F : 00~~127	38,05
b0~~b1	MFX Chain Signal	0:LR Mix, 1:L Only, 2:R Only	38,08
82	b2	MFX Chain Direction	0:MFX1 -> MFX2, 1:MFX2 -> MFX1
	b3	MFX Chain ON/OFF	0:Chain Off, 1:On
83	MFX Chain Level	00~~7F : 00~~127	38,09
84	Master EQ Low Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	3B,00
85	Master EQ Mid Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	3B,01
86	Master EQ High Gain	DC~~24 : -18.0~~+18.0dB (0.5dB step)	3B,02
87	Master EQ Low Fc	00~~31 , 0:20Hz ~ 49:1.00kHz	3B,03
88	Master EQ Mid Fc	00~~61 , 0:300Hz ~ 97:10.00kHz	3B,04
89	Master EQ High Fc	00~~C3 , 0:500Hz ~ 195:20.00kHz	3B,05
90	Master EQ Mid Q	00~~5F , 0:0.5 ~ 95:10.0 (0.1 step)	3B,06

91	Master EQ Low DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	3B,07
92	Master EQ High DMod	00~~1F : Off~Tempo(See '*1' in midifx.txt)	3B,08
93	Mst.EQ Ctrl.Channel	00~~0F:MIDI Channel 1~~16, 10:Global Channel	38,0C
94	(Reserved)		----
95	(Reserved)		----
ARPEGGIATOR PARAMETERS			
96	(Reserved)		----
bit0	SWITCH	0:OFF, 1:ON	33,01
97 bit1	ARPEGGIATOR RUN A	0:OFF, 1:ON	33,02
bit2	ARPEGGIATOR RUN B	0:OFF, 1:ON	33,03
ARPEGGIATOR A			
98	PATTERN NO.	00~~DC : 0~~220	34,00
b0~~1	OCTAVE	00~~03 : 1~~4	34,02
99 b2~~4	RESOLUTION	0:16T, 1:16, 2:8T, 3:8, 4:4T, 5:4	34,01
100	GATE	00~~64 : 0~~100[%], 65:Step	34,03
101	VELOCITY	01~~7F : 1~~127, 80:Key, 81:Step	34,04
102	SWING	9C~~64 : -100~~100	34,05
bit0	SORT	0:OFF, 1:ON	34,06
bit1	LATCH	0:OFF, 1:ON	34,07
103 bit2	KEY SYNC.	0:OFF, 1:ON	34,08
bit3	KEYBOARD	0:OFF, 1:ON	34,09
104	TOP KEY	00~~7F : C-1~~G9	34,0A
105	BOTTOM KEY	00~~7F : C-1~~G9	34,0B
106	TOP VELOCITY	01~~7F : 1~~127	34,0C
107	BOTTOM VELOCITY	01~~7F : 1~~127	34,0D
ARPEGGIATOR B			
108			35,00
:	Same as ARPEGGIATOR A (98~~107)		:
117	(10 Bytes)		35,0D
COMMON PARAMETERS			
118	(RESERVED)		----
119	SCALE TYPE	00~~1A : **1-1	00,00
120	SCALE KEY	00~~0B : C~~B	00,01
121	RANDOM INTENSITY	00~~07 : 0~~7 Normal = 0	00,02
b0~~5	SW 1 ASSIGN TYPE	00~~0C : **1-2	00,03
122 bit6	SW1 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary	00,07
bit7	SW 1 ON/OFF	0:OFF, 1:ON	00,05
b0~~5	SW 2 ASSIGN TYPE	00~~0C : **1-2	00,04

123	bit6	SW2 TOGGLE/MOMENTARY	0:Toggle, 1:Momentary		00,08
	bit7	SW 2 ON/OFF	0:OFF, 1:ON		00,06
	b0~~6	KNOB 1 ASSIGN TYPE	00~~7C : **1-3		00,09
124	bit7	REALTIME CONTROLS	0:A, 1:B **2-2		00,0D
	b0~~6	KNOB 2 ASSIGN TYPE	00~~7C : **1-3		00,0A
125	bit7	REALTIME CONTROLS MSB	0:A or B, 1:C **2-2		00,0E
126		KNOB 3 ASSIGN TYPE	00~~7C : **1-3		00,0B
127		KNOB 4 ASSIGN TYPE	00~~7C : **1-3		00,0C
TRACK 1 PARAMETERS					
128		PROGRAM NO.	00~~7F : 00~~127		n,00
129		PROGRAM BANK	00~~05 : Bank A~~g(d)		n,00
	b0~~b4	MIDI CHANNEL	00~~0F : MIDI Channel 1~~16		n,04
130	b5~~b7	STATUS	0:INT, 1:Off, 2:BTH, 3:EXT, 4:EX2		n,03
131		BANK SELECT MSB	00~~7F : 00~~127	Available only when status is EX2.	n,05
132		BANK SELECT LSB	00~~7F : 00~~127		n,06
133		VOLUME	00~~7F : 00~~127		n,02
134		PITCH BEND RANGE	E7:PROG, E8~~18 : -24~~24		n,0C
135		TRANSPOSE	E8~~18 : -24~~24		n,0A
136		DETUNE MSB	FB50~~4B0: -1200~~1200		
137		DETUNE LSB			n,0B
138		DELAY START	00~~60,61 : **1-5		n,0D
139		PAN	00:RND, 01~~7F : L001~~R127		n,01
140		SEND 1 LEVEL	00~~7F : 00~~127		n,29
141		SEND 2 LEVEL	00~~7F : 00~~127		n,2A
142		(RESERVED)			----
	b0~~ 2	DRUMKIT IFX Patch	0:IFX, 5:L/R (1~~4:Not Available)		n,2B
143	b3~~ 7	(RESERVED)			----
144		BUS SELECT	00:DKit, 01:L/R, 02:IFX, 07~~08:1~~2, 0B:1/2, 0D:Off		n,28
	bit0	PROGRAM CHANGE FILT	0:DIS, 1:ENA		n,0F
	bit1	AFTER TOUCH FILTER	0:DIS, 1:ENA		n,10
	bit2	DAMPER FILTER	0:DIS, 1:ENA		n,11
	bit3	PORTAMENTO FILTER	0:DIS, 1:ENA		n,12
145	bit4	JS(X) AS AMS FILTER	0:DIS, 1:ENA		n,13
	bit5	JS(Y+) FILTER	0:DIS, 1:ENA		n,14
	bit6	JS(Y-) FILTER	0:DIS, 1:ENA		n,15
	bit7	RIBBON FILTER	0:DIS, 1:ENA		n,16

146	bit0	ASSIGN KNOB 1 FILTER	0:DIS, 1:ENA		n,17
	bit1	ASSIGN KNOB 2 FILTER	0:DIS, 1:ENA		n,18
	bit2	ASSIGN KNOB 3 FILTER	0:DIS, 1:ENA		n,19
	bit3	ASSIGN KNOB 4 FILTER	0:DIS, 1:ENA		n,1A
	bit4	ASSIGN SW 1 FILTER	0:DIS, 1:ENA		n,1B
	bit5	ASSIGN SW 2 FILTER	0:DIS, 1:ENA		n,1C
	bit6	FOOT PEDAL/SW FILTER	0:DIS, 1:ENA		n,1D
	bit7	OTHER CONTROL FILTER	0:DIS, 1:ENA		n,1E
147	b0,1	FORCE OSC MODE	0:Program, 1:Poly, 2:Mono, 3:Mono Legato		n,07
	b2,3	OSC SELECT	0:BOTH, 1:OSC1, 2:OSC2		n,08
	b4,5	ARPEGGIATOR ASSIGN	0:OFF, 1:A, 2:B		n,27
	bit6	USE PROGRAM'S SCALE	0:DIS, 1:ENA		n,0E
148		PORTAMENT TIME	FF:PRG, 00:Off, 01~~7F : 1~~127		n,09
149		KEY Z TOP	00~~7F : C-1~~G9		n,1F
150		KEY Z BOTTOM	00~~7F : C-1~~G9		n,22
151	b0~~3	KEY Z TOP SLOPE	0~~F: **2-1		n,20
	b4~~7	KEY Z BOTTOM SLOPE	0~~F: **2-1		n,21
152		VEL Z TOP	01~~7F : 1~~127		n,23
153		VEL Z BOTTOM	01~~7F : 1~~127		n,26
154	b0~~3	VEL Z TOP SLOPE			n,24
	b4~~7	VEL Z BOTTOM SLOPE	0~~F : 0~~120 (Vel fade slope = Para value * 8)		n,25
155		(RESERVED)			----
TRACK 2~~16 PARAMETERS					
156	:	Same as TRACK 1 (128~~155)			n,00
575		(28 * 15 = 420 Bytes)			n,2B
SONG CONTROL DATA					
576		RPPR ON/OFF	0:OFF, 1:ON		----
577		TRACK SELECT	0~~F : TRK01~~16		----
578		(RESERVED)			----
579		(RESERVED)			----
580		METER	10~~3F : **11-1		----
581		TEMPO	28~~F0 : 40~~240		----
582		METRONOME LEVEL	00~~7F : 00~~127		----
583		METRONOME BUS SELECT	0:L/R,1:L,2:R,3~~4:1~~2,7:1/2		----
584		METRONOME PRECOUNT	00~~02 : 0~~2		----

585	TEMPO MODE	0:AUTO, 1:MANUAL	----
586	TRACK9~~16 MODE	0:PLAY, 1:MUTE	----
587	TRACK1~~8 MODE	0:PLAY, 1:MUTE	----
588	TRACK 1 NAME (Head)	20~~7F	----
:	:		----
603	TRACK 1 NAME (Tail)		
604	TRACK 2~~16 NAME		----
:	Same as TRACK 1 NAME (588~~603)		
843	(16 * 15 = 240 Bytes)		
844	TR1 EVENT ADRS (MSB)		----
:	: (4 Bytes)		
847	TR1 EVENT ADRS (LSB)		
848	TRACK 2~~16, MASTER TRACK EVENT ADDRESS		----
:	Same as TRACK 1 EVENT (844~~847)		
911	(4 * 16 = 64 Bytes)		
912	(RESERVED)		----
:	: (4 Bytes)		
915	:		
PATTERN 0			
916	NAME (Head)	20~~7F	----
:	:		
:	:	[ASCII CODE]	
931	NAME (Tail)		
932	LENGTH	01~~63 : 01~~99	----
933	METER	**11-1	----
934	(RESERVED)		----
935	(RESERVED)		----
936	EVENT DATA ADRS(MSB)		----
:	: (4 Bytes)		
939	EVENT DATA ADRS(LSB)		
940	PATTERN 1~~99		----
:	Same as PATTERN 0 (916~~939)		
3315	(24 * 99 = 2376 Bytes)		
3316	TRACK9~~16 INT	0:OFF, 1:ON	----
3317	TRACK1~~8 INT	0:OFF, 1:ON	----
3318	TRACK9~~16 EXT	0:OFF, 1:ON	----
3319	TRACK1~~8 EXT	0:OFF, 1:ON	----
TRACK 1 PLAY LOOP			
bit7	ASSIGN	0:OFF, 1:ON	----
3320 bit6	PLAY INTRO	0:OFF, 1:ON	----
b0~~5	START MEASURE (MSB)	01~~3E7 : 001~~999	----
3321	START MEASURE (LSB)		
3322	END MEASURE (MSB)	01~~3E7 : 001~~999	----
3323	END MEASURE (LSB)		
3324	TRACK 2~~16		

3383	:	Same as TRACK 1 PLAY LOOP (3416~~3419)		----
		(4 * 15 = 60 Bytes)		

		KEY=C-1 RPPR		

3384	:	PATTERN	00~~63 : U00~~U99 00~~95 : P00~~P149	----

3385	b0~~3	TRACK	00~~0F : 01~~16	----
	b4~~7	SYNC	0:Off, 1:Beat, 2:Measure, 3:SEQ	----

	b0~~3	MODE	0:Once, 1:Manual, 2:Endless	----
3386	b4~~7	STATUS	0:NOTE,1:PAT,2:SHUTDOWN	----

3387	:	SHIFT NOTE	F4~~0C : -12~~12	----

3388	:	KEY=C#-1~~G9 RPPR		
	:	Same as KEY=C-1 RPPR (3384~~3387)		----
3895	:	(4 * 127 = 508 Bytes)		

**11-1 : 10~~1F : 1/4~~ 16/4
 20~~2F : 1/8~~ 16/8
 30~~3F : 1/16~~16/16

SONG EVENT DATA FORMAT

* SONG EVENT DATA's address is showed by each track's EVENT ADDRESS (1 MULTI DATA's 940~~1007th, 1032~~3411th). And usually they are located just behind the 1 SONG DATA.

x : Ignored

1st Data	2nd Data	3rd Data	4th Data	5th Data	6th Data
....	kkkk

kkkk : Evetn Data Kind

= 1 : Bar at Master Track
 = 3 : Track End
 = B : Tempo Change

= 1 : Bar at Track 1~~16
 = 2 : Pattern
 = 3 : Track End
 = 9 : Note
 = A : Poly Key Pressure
 = B : Control Change
 = C : Program Change
 = D : After Touch
 = E : Pitch Bend

= 1 : Bar at Pattern
 = 3 : Pattern End
 = 9 : Note
 = A : Poly Key Pressure
 = B : Control Change
 = C : Program Change
 = D : After Touch
 = E : Pitch Bend

* NOTE ON/OFF

xxxx	gggg	gggg	gggg	xvvv	vvvv	xkkk	kkkk	tttt	tttt	tttt	1001
------	------	------	------	------	------	------	------	------	------	------	------

Length Velocity Key No. Tick

ggg : Note length (From Note On to Note Off)
 = 000~~BFFH
 (= 0C0H : Quarter note)
 (= FFFH : Tie to next measure)

vv = 01~~7fH

ttt : Location of Note On (in the measure)
 = 000~~BFFH
 (= 0C0H : Quarter note)
 (= FFFH : Tie from last measure)

* PITCH BEND

uppp pppp	xbbb bbbb	xPPP PPPP	xBBB BBBB	tttt tttt	tttt 1110
Last Val(H)	Last Val(L)	Value(H)	Value(L)	Tick	
*1				*2	

* AFTER TOUCH

xxxx xxxx	xxxx xxXu	xvvv vvVv	xVVV VVVV	tttt tttt	tttt 1101
	Last Value	Value		Tick	
	*1			*2	

* PROGRAM CHANGE

bbbb bbbb	unnn nnnn	BBBB BBBB	xNNN NNNN	tttt tttt	tttt 1100
Last Bank	Last Prog. No.	Bank	Prog. No.	Tick	
	*1			*2	

* CONTROL CHANGE

xxxx xxXu	xvvv vvVv	xVVV VVVV	xnnn nnnn	tttt tttt	tttt 1011
	Last Value	Value	Control No.	Tick	
	*1			*2	

* POLY KEY PRESSURE

xxxx xxxx	xxxx xxxx	xvvv vvVv	xkkk kkkk	tttt tttt	tttt 1010
		Value	Key No.	Tick	
				*2	

* PATTERN (Insterad of BAR)

xxxx xxxx	xxxx xxxx	xMMM MMMM	nnnn nnnn	xxmm mmmm	mmmm 0010
	Pat Measure	Pat No.	Measure No.		
			*3		

M : Measure No. in the Pattern (00~~63H : 00~~99)
 n = Pattern No. (00~~63 : U00~~U99
 64~~F9 : P000~~P149)

* TEMPO CHANGE

xxxx xxXu	vvvv vvVv	VVVV VVVV	0110 1011	tttt tttt	tttt 1011
	Last Tempo	Tempo	(Fixed)	Tick	

*1

*2

vv,VV = 28H~F0H (40~240BPM)

* BAR

```

+-----+-----+-----+-----+-----+-----+
| xxxx xxxx | xxbb bbbb | ssss ssss | ssss ssss | xxmm mmmm | mmmm 0001 |
+-----+-----+-----+-----+-----+-----+
Meter              Size              Measure No.

```

*3

bb = 10~1F : 1/4~16/4
 20~2F : 1/8~16/8
 30~3F : 1/16~16/16
 ss : Event Number in the measure

* TRACK/PATTERN END

```

+-----+-----+-----+-----+-----+-----+
| xxxx xxxx | xxxx xxxx | xxxx xxxx | xxxx xxxx | xxmm mmmm | mmmm 0011 |
+-----+-----+-----+-----+-----+-----+
Measure No.

```

*3

*1 : u = 0 : Use [Last value } for last value
 u = 1 : Last value is unfixed
 Last value is used when Rewind & Location is decreased.

*2 : ttt : Location of Event (in the measure)
 = 000~BFFH
 (= 0C0H : Quarter note)

*3 : mmm : Measure No. in the Track (000~3E7H = 000~999)

-Revision History-

1.0	Aug.22.'01	Initial Release.	
1.1	Nov.01.'01	Modified the mistake of 'COMBINATION PARAMETER DUMP'	
1.2	Mar.07.'02	Modify 'DATA CONVERT METHOD'.	
1.3	Jun.17.'02	Fix some mistakes.	
1.4	Aug.29.'02	Supported Le88	(see 1-4-1 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES:DEVICE INQUIRY REPLY)
		that has a "Piano" PCM Multisample Bank.	(see [TABLE 1]-No.:136,140)
		Added a missing paramter: Program/OSCILLATOR 1 OUTPUT/USE DKIT SETTING.	(see [TABLE 1]-No.:283)
1.5	Jan.06.'03	Modified for System Version 1.5.	
		Expanded Values of Global/FOOT SW & PEDAL ASSIGN.	(see [TABLE 3] and **3-1,**3-2)
		Supplied some Sequencer Parameter ID for PARAMETER CHANGE.	(see [TABLE 11]-"PARA No.")
		Fix some mistakes.	